MAINTENANCE PROCEDURES

STERIS

Eagle® Century™ and Millennium Series Sterilizers

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A Word From STERIS

This manual contains important information on proper maintenance of the Eagle® Century™ and Millennium Series Sterilizers. All personnel involved in the use of this equipment must carefully review and comply with the warnings, cautions and instructions contained in this manual. These instructions are important to protect the health and safety of personnel servicing an Eagle Century and Millennium Series sterilizer and should be retained in a conveniently accessible area for reference.

This sterilizer is specifically designed to process goods using only the cycles as specified in this manual. If there is any doubt about a specific material or product, contact the manufacturer of the product for the recommended sterilization technique.

STERIS carries a complete line of accessories for use with this sterilizer to simplify, organize and assure sterility of the sterilization process. Instrument trays and biological/chemical monitoring systems are all available to fulfill your facility's processing needs. A STERIS representative will gladly review these with you.

SERVICE INFORMATION

A thorough preventive maintenance program is essential to safe and proper sterilizer operation. Comprehensive instructions for routine preventive maintenance can be found in the *Routine Maintenance, P-129367-410*, provided.

You are encouraged to contact STERIS concerning our Annual Maintenance Agreement. Under the terms of this agreement, preventive maintenance, adjustments, and replacement of worn parts are done on a scheduled basis to assure equipment performance at peak capability and to help avoid untimely or costly interruptions. STERIS maintains a global staff of well equipped, factory-trained technicians to provide this service, as well as expert repair services. Please contact your STERIS representative for details.

ADVISORY

A summary of the safety precautions to be observed when operating this equipment can be found in Section 1 of this manual. Do not operate the sterilizer until you have become familiar with this information.

The Scientific series of this model sterilizer is not designed to process flammable liquids nor liquids in containers that are not designed for sterilization. The Health Care series of this model sterilizer is not designed to process flammable liquids nor liquids in containers that are not designed for sterilization. Any alteration of the sterilizer which affects its operation will void the warranty and could violate state and local regulations and jeopardize insurance coverage.

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Section 1: Listing of Warnings and Cautions

The following is a listing of safety precautions which must be observed when operating or servicing this equipment. WARNINGS indicate the potential for danger to personnel, and CAUTIONS indicate the potential for damage to equipment. These precautions are repeated (in whole or in part), where applicable, throughout the manual.

Observance of these safety precautions will minimize the risk of personal injury and / or the possible use of improper maintenance methods which may damage the unit or render it unsafe. It is important to understand that these precautions are not exhaustive. STERIS could not possibly know, evaluate and advise maintenance departments of all conceivable ways in which maintenance might be done or the possible hazardous consequences of each way.

WARNING — BURN HAZARD:

Repairs and adjustments should be attempted only by authorized persons fully acquainted with this equipment. Use of inexperienced, unqualified persons to work on the equipment or the installation of unauthorized parts could cause personal injury or result in costly damage!

Before performing any cleaning or maintenance procedures allow sterilizer, generator (if applicable) and accessories to cool to room temperature .

Sterilizer and rack/shelves will be HOT after cycle is run. Always wear protective gloves and apron (also face shield if processing liquids) when removing a processed load. Protective gloves and apron must be worn when reloading sterilizer following previous operation.

A steam supply malfunction, identified by an audible (warble tone) and visual alarm, can cause the sterilizer chamber to fill with scalding water.

- **Do not open the door.**
- **Call for service immediately.**

Failure to shut off the steam supply when cleaning or replacing strainers can result in serious injury.

Jacket pressure must be at 0 psig before beginning work on the jacket trap.

Proper testing of safety valves requires that it be under pressure. Exhaust from the safety valve is hot and can cause burns. Proper safety attire (gloves, eye protection, insulated overalls) as designated by OSHA are required. Testing is to be performed by qualified service personnel only.

Do not remove the Jacket RTD for jacket calibration until the chamber and jacket gauges read 0 psig.

Depressurize jacket before removing jacket RTD. Always verify that chamber and jacket pressure is at 0 psig by observing the jacket and pressure gauges behind the front access door.

WARNING — ELECTRIC SHOCK HAZARD:

DISCONNECT FACILITY POWER OR PLACE CONTROL DISCONNECT SWITCH, located on control box, to OFF before removing or replacing any fuses or printed circuits boards from the sterilizer's control section.

WARNING — EXPLOSION HAZARD:

Healthcare sterilizers are not designed to process liquids.

Scientific sterilizers are not designed to process flammable liquids.

Do not use this sterilizer in the presence of flammable compounds.

WARNING — FALL HAZARD:

To prevent falls, keep floors dry by wiping up any spilled liquids or condensation in sterilizer loading or unloading area(s).

WARNING — STERILITY ASSURANCE HAZARD:

Load sterility may be compromised if the biological air removal or air leak test indicates a potential problem. If these indicators show a potential problem, refer the situation to a qualified service technician before using the sterilizer further.

According to AAMI standards, a measured leak rate greater than 1 mm Hg/minute indicates a problem with the sterilizer. Refer the situation to a qualified service technician before using the sterilizer further.

WARNING — PERSONAL INJURY HAZARD:

Regularly scheduled preventive maintenance is required for safe and reliable operation of this equipment. Contact your STERIS Service Representative to schedule preventive maintenance.

When closing the chamber door, keep hands and arms out of the door opening, and make sure opening is clear of obstructions.

Before entering chamber for cleaning or servicing, turn main power switch OFF.

Area must be properly vented to prevent buildup of fumes. Wear eye protection and gloves when pouring descaler into unit.

The sterilizer door weighs approximately 35 lbs (16") or 70 lbs (20"). Always use care when removing the door. Two service persons should always be present when removing the 20" door.

CAUTION — POSSIBLE EQUIPMENT DAMAGE

Insufficient Service Clearance will make repairs more difficult and time consuming.

Piping sized too small may cause water hammer, resulting in damage to the sterilizer.

If 0 dry time is selected, sterilizer automatically initiates a vapor removal phase in place of drying. This phase can still draw a vacuum to 5 in Hg. Consult manufacturer's recommendations to ensure your equipment can withstand this depth of vacuum before selecting 0 dry time.

Never use a wire brush, abrasives or steel wool on door and chamber assembly. Do not use cleaners containing chloride on stainless steel surfaces. Chloride based cleaners will deteriorate stainless steel, eventually leading to failure of the vessel.

After installation it is mandatory to brace piping at the drain funnel so that it will not move vertically.

Removing the door seal gasket with a tool such as a screwdriver (the recommended method) in most cases will cut or otherwise damage the gasket so that it cannot be further used.

- **Do not remove the gasket unless absolutely necessary.**
- **Do not use a sharp tool to install the gasket.**

Allow thermostatic traps to cool to room temperature before removing cover. Since there is nothing to limit expansion, the diaphragm may rupture or fatigue if trap is opened while hot.

Failure to flush generator daily could result in malfunction of the generator. Warranty on the generator will be voided unless flushed daily.

Actuation at less than 75% of rated pressure can allow debris to contaminate the seat and cause the safety valve to leak. A leaking safety valve must be replaced.

Whenever working under the sterilizer door, raise the door to its full up position and insert both tethered door pins. *Be sure the pins are subsequently removed before door actuation is initiated.*

Whenever handling electronic components, use of a grounding wrist strap is mandatory to prevent static discharge damage.

Section 2: Cycles and Phases

2.1 GRAVITY/FLASH CYCLE

NOTE: *S7 solenoid valve is used to control the waste water temperature below 140°F. S7 will turn on any time it is necessary to cool the waste temperature.*

NOTE: *The status shown on the display will change during the cycle but the screen will remain the same for most of the phases. The only phases which use different screens are: air break and retract because there is no abort during these phases, and the cycle complete phase. The status changes are shown below.*

NOTE: Components shown in parentheses ( ) denote components used only on double door sterilizers.

2.1.1 Jacket Temperature – Out of cycle

On Health Care units, the jacket is maintained at the temperature the previous cycle was run. On Scientific units, the jacket is maintained at 115°C.

2.1.2 Activate Seal(s)

(38) (Door Exhaust) will be energized for 1.5 seconds. S35 (36) (Door Seal) will pulse during this time. After 1.5 seconds S37 (38) will be deenergized and S35 (36) will be energized. When the pressure behind the seal reaches 10 psig and after a 5 second delay, the cycle will advance to the Purge phase.

2.1.3 Purge

S2 (Steam to Chamber), S3 (Fast Exhaust), S4 (Cooling Water), and S35 (36) will be on. S7 (Vacuum & Cooling Water) and S9 (Steam to Jacket) will pulse throughout cycle to maintain effluent water temperature. S7 is normally off because S4 will keep effluent cool. S9 will shut off if chamber pressure is greater than 10 psig for a 265°F cycle.

2.1.4 Charge

S3 and S4 will go off. S2 and S35 (36) will be on. S7 and S9 will remain intermittent. Verify that chamber is charging with steam and will charge until the sterilize set temperature value 250°F is reached. S9 will pulse, to limit overshoot, if pressure is over 15 psig for a 250°F cycle or 27 psig for a 270°F cycle.

2.1.5 Sterilize

S2 and S35 (36) will remain on. S9 will be intermittent while controlling temperature at set point. S7 will be intermittent while controlling temperature of the waste water. Wait until sterilize time reaches 0:00.

2.1.6 Fast Exhaust

S2 will go off. S3, S4 and S35 (36) will be on.

- S7 and S9 will be intermittent while controlling the effluent and jacket temperatures.
- Fast exhaust should last less than 1 minute.
- Wait until display shows 4 psig.

2.1.7 Dry

S4 will go off. S3, S7 and S35 (36) will be on.

- S9 will be intermittent while controlling the jacket temperature.
- The Gravity and Flash cycles do not have a dry time, instead they use a slow vapor removal.

2.1.8 Air Break

S1, S35 (36) will be on.

- S7 and S9 may be intermittent while controlling the temperature of the waste water and jacket.

2.1.9 Retract Seals

S1 will remain on. S35 (36) will turn off. S7, S37 (38) will turn on. After the seal pressure switch opens (less than 10 psig), a vacuum will be pulled for an additional 18 seconds. If zero dry time is selected, the door motor will energize for a few seconds to slightly open the door to vent any excess vapor. This vent period will last 1 minute.

2.1.10 Complete

S37 (38) will be on. S7 will be intermittent. S9 will maintain jacket temperature at approximately 270°F; all others will be off. A summary of the values attained during the cycle will be printed. Open the door(s).

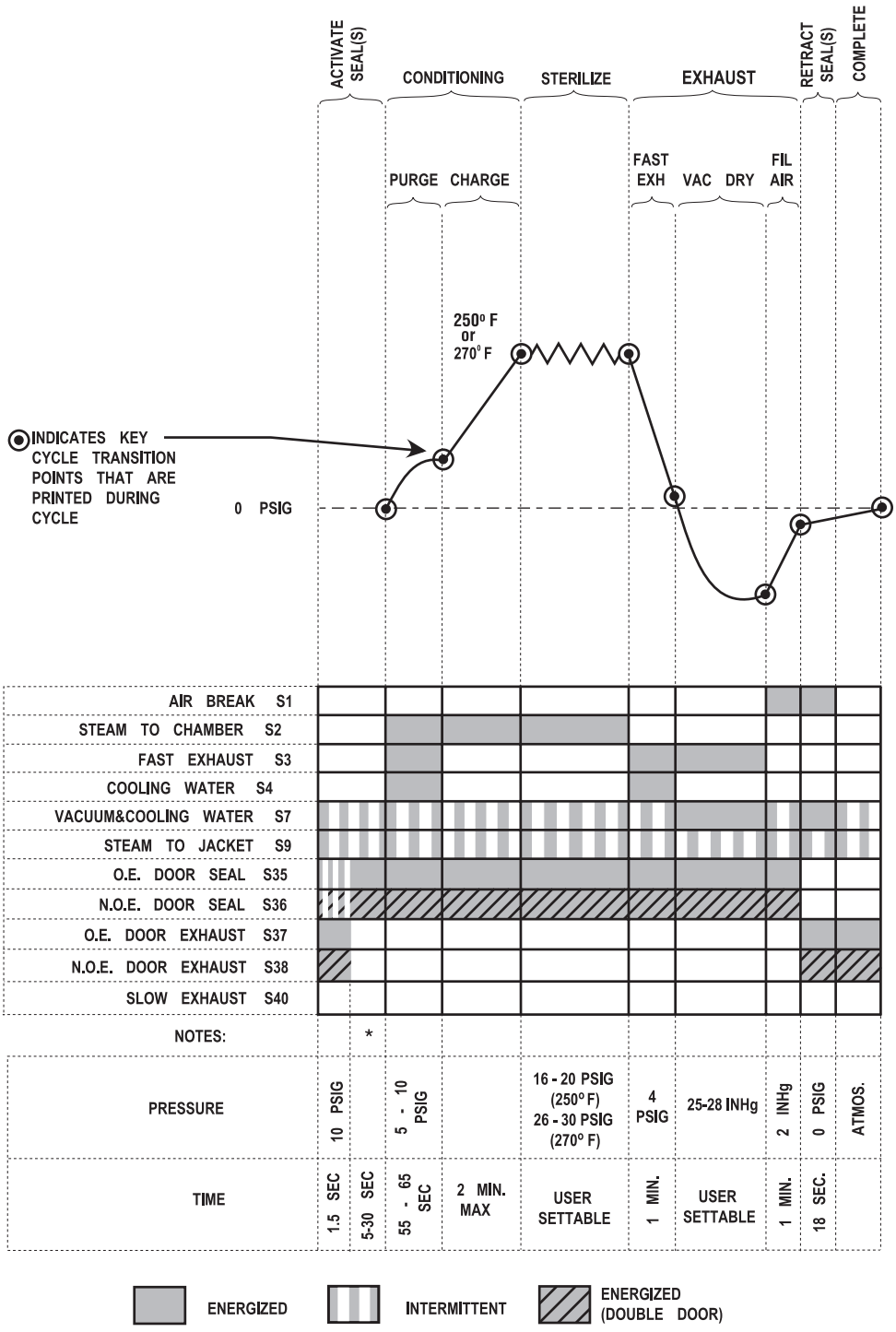


Figure 2-1. Gravity/Flash Cycle Graph

2.2 PREVAC/EXPRESS/DART (BOWIE-DICK) CYCLE

NOTE: *S7 solenoid valve is used to control the waste water temperature below 140°F, S7 will turn on any time it is necessary to cool the waste temperature.*

NOTE: *Components shown in parentheses ( ) denote components used only on double door sterilizers.*

2.2.1 Jacket Temperature – Out of cycle

On Health Care units, the jacket is maintained at the temperature the previous cycle was run. On Scientific units, the jacket is maintained at 115°C.

2.2.2 Activate Seal(s)

S37 (38) (Door Exhaust) will be energized for 1.5 seconds. S35 (36) (Door Seal) will pulse during this time. After 1.5 seconds S37 (38) will be deenergized and S35 (36) will be energized. When the pressure behind the seal reaches 10 psig and after a 5 second delay, the cycle will advance to the Purge phase.

2.2.3 Purge

S2 (Steam to Chamber), S3 (Fast Exhaust), S4 (Cooling Water), and S35 (36) will be on. S7 (Vacuum and Cooling Water) will be intermittent to maintain the effluent temperature. S9 (Steam to Jacket) will be intermittent to maintain jacket temperature.

2.2.4 Vacuum Pulse

S2 turns off. After 4 psig is reached, S4 will turn off and S7 will turn on. S9 will be intermittent while controlling the jacket temperature. A vacuum will be pulled on the chamber for 1 minute (after 4 psig is reached) until 10 inHg is reached. After the second vacuum pulse the cycle will advance to the Charge.

2.2.5 Pressure Pulse

S3 turns off. S2, S9 and S35 (36) will be on. S7 will be intermittent. Wait until the pressure reaches 26 psig. Vacuum pulse will repeat. (2 pulses for Express, 4 pulses for Prevac and DART cycles.)

2.2.6 Charge

S3 will go off. S2, and S35 (36) will be on. S9 will be on for a 285°F cycle and will operate intermittently for a 270°F. cycle, to limit overshoot. S7 will be intermittent. Verify that chamber is charging with steam and will charge until the sterilizer set temperature value 270°F. is reached.

2.2.7 Sterilize

S9 will be intermittent while controlling temperature at set point. S2 and S35 (36) will remain on. S7 will be intermittent while controlling temperature of the waste water. The DART cycle is fixed at 3:30 minutes exposure.

2.2.8 Fast Exhaust

S2 will go off. S3, S4 and S35 (36) will be on. S7 and S9 will be intermittent while controlling the effluent and jacket temperatures. Fast exhaust should last less than 1 minute. Wait until display shows 4 psig.

2.2.9 Dry

S4 will go off. S3, S7 and S35 (36) will be on. S9 will be intermittent while controlling the jacket temperature.

2.2.10 Air Break

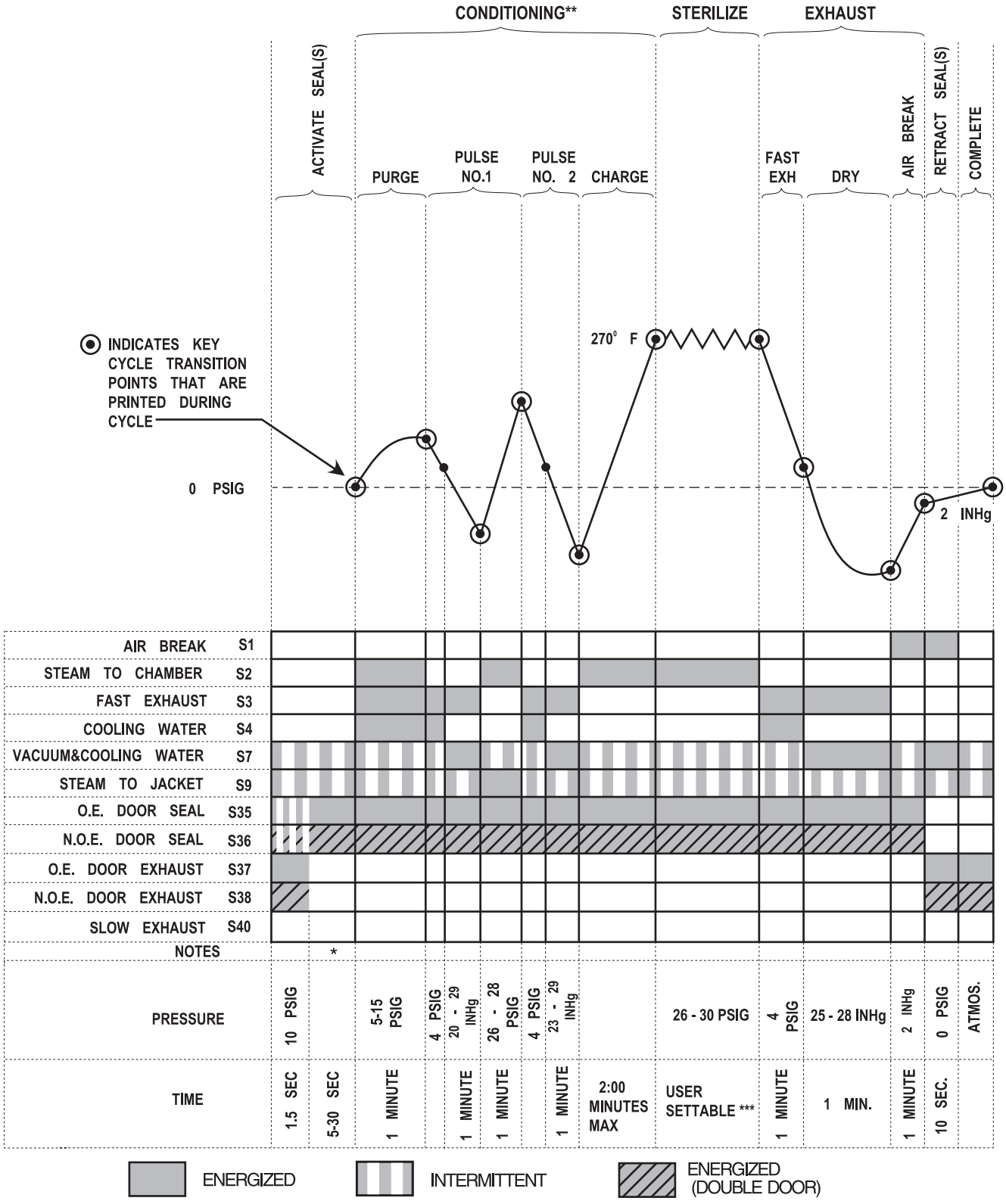
S1, S35 (36) will be on. S7 and S9 may be intermittent while controlling the temperature of the waste water and jacket.

2.2.11 Retract Seals

S1 will remain on. S35 (36) will turn off. S7, S37 (38) will turn on. After the seal pressure switch opens (less than 10 psig), the vacuum will be pulled for an additional 18 seconds.

2.2.12 Complete

S1 will turn off. S37 (38) will be on. S7 will be intermittent while controlling the effluent temperature and S9 will maintain jacket temperature at approximately 285°F, all others will be off. A summary of the values attained during the cycle will be printed. Open the door(s).



* - ONCE DOOR SEAL SWITCH IS ACTIVATED, CONTROL WAITS 5 SECONDS BEFORE MOVING TO PURGE

** 2 pulses shown for Express cycle, Prevac and DART has 4 pulses.

*** DART cycle exposure is fixed at 3:30 minutes.

Figure 2-2. Prevac/Express/DART (Bowie-Dick) Cycle Graph

2.3 LIQUID CYCLE

NOTE: *S7 solenoid valve is used to control the waste water temperature below 140°F. S7 will turn on any time it is necessary to cool the waste temperature.*

NOTE: *The status shown on the display will change during the cycle but the screen will remain the same. Because of this, only one display will be shown and the status changes will be explained below. The status changes are shown below.*

NOTE: *Components shown in parentheses ( ) denote components used only on double door sterilizers.*

2.3.1 Jaket Temperature – Out of cycle

On Health Care units, the jacket is maintained at the temperature the previous cycle was run. On Scientific units, the jacket is maintained at 115°C.

2.3.2 Activate Seal(s)

S37 (38) (Door Exhaust) will be energized for 1.5 seconds. S35 (36) (Door Seal) will pulse during this time. After 1.5 seconds S37 (38) will be deenergized and S35 (36) will be energized. When the pressure behind the seal reaches 10 psig and after a 5 second delay, the cycle will advance to the Purge phase.

2.3.3 Purge

S2 (Steam to Chamber), S3 (Fast Exhaust), S4 (Cooling Water), and S35 (36) will be on. S9 (Steam to Jacket) will pulse throughout cycle. S7 (Vacuum & Cooling Water) will normally be off but may pulse to assist S4 in maintaining effluent water temperature.

2.3.4 Charge

S3 and S4 will go off. S2 and S35 (36) will be on. S7 will remain intermittent, in order to limit overshoot. S9 will pulse if pressure is above value indicated in chart below. (Note that if sterilize temperature is less than 230°F, pressure is controlled at or below 6 psig. Verify that chamber is charging with steam and will charge until the sterilize set temperature value is reached.

Sterilize Temperature	Pressure (below this value)
less than 230˚F	less than 2 psig
230˚F	6 psig
245˚F	15 psig
255˚F	21 psig
265˚F	27 psig

2.3.5 Sterilize

S9 will be intermittent while controlling temperature at set point. S2 and S35 (36) will remain on. S7 will be intermittent while controlling temperature of the waste water. Wait until sterilize time reaches 0:00

2.3.6 Exhaust

S9 will turn off. S35 (36) will be on. The normally open slow exhaust solenoid S40 will cycle ON / OFF to maintain the correct exhaust rate. The rates are maintained between two transition points as follows:

- From sterilize pressure to 4.2 psig the rate is 1.6 psi / min.
- From 4.2 psig to 5" Hg the rate is 0.6 psi / min.

NOTE: These transition rates can be adjusted for high altitudes in the service mode.

The control monitors the pressure drop in exhaust versus the time in exhaust to determine if the exhaust rate is too fast or too slow. If the exhaust rate is too fast, S40 will energize (close) to slow the rate. If the exhaust rate is too slow, S40 will deenergize (open) and S3 will cycle ON / OFF to help drop chamber pressure. If the pressure varies by more than 2 psi from specification, an alarm will occur.

Once the pressure reaches 0 psig S7 will be energized to pull the chamber to a vacuum of 5 inHg at a rate of 1.2 inHg / min by intermittently controlling S3. S40 will be on. Once 5 inHg is reached S7 will be deenergized and S1 (Air Break) will be energized to break to atmospheric pressure, S3 and S40 will turn off. Once 2 inHg is reached cycle advances to Door Seal Retract.

2.3.7 Retract Seal(s)

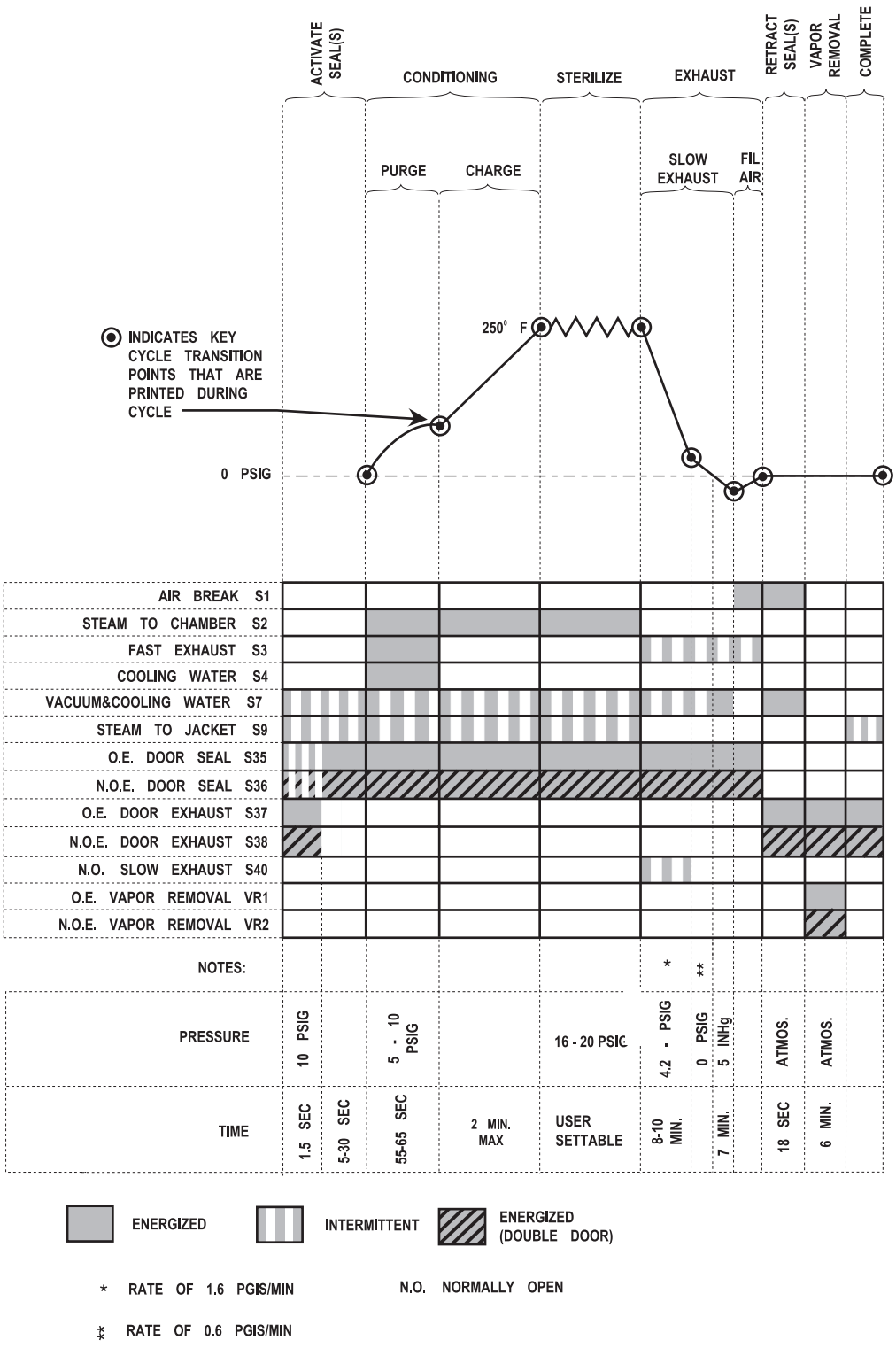
S3, S35 (36) will turn off. S7, S38 (38) will turn on. After the seal pressure switch opens (less than 10 psig), a vacuum will be pulled for an additional 18 seconds and once 1 inHg is reached cycle advances to vapor removal.

2.3.8 Vapor Removal

VR1 (VR2) will turn on. S37 (S38) will remain on. S1 and S7 will turn off. This phase will last for 6 minutes.

2.3.9 Complete

S37 (38) will be on. S9 will maintain jacket temperature at approximately 115°F. A summary of the values attained during the cycle will be printed. Open the door(s).



NOTE: Transition points for slow/fast exhaust are adjustable for altitude in the service mode.

Figure 2-3. Liquid Cycle Graph

2.4 STEAM FLUSH PRESSURE PULSE (SFPP) CYCLE (Millennium only)

2.4.1 General

Millennium sterilizers utilize the pressure pulse cycles developed by the former Joslyn Sterilizer Corporation, now part of STERIS. This section describes the operation of cycles available on Millennium sterilizers.

2.4.2 Wrappid/Express

This cycle is shown on the display as WRAP / EXPR and is a 4 minute 270°F exposure with 3 minute dry to be used for single wrapped instrument trays. The cycle uses two (2) steam-flush pressure pulses in the conditioning phase.

2.4.3 Wrappid/SFPP

This cycle is shown on the display as WRAP / SFPP and is a 4 minute 270°F exposure with 20 minute dry to be used for containers, single or double wrapped instrument trays. The cycle uses two (2) steam-flush pressure pluses in the conditioning phase. This cycle is essentially the same as the WRAPPID / EXPRESS except that it has a longer dry time.

2.4.4 SFPP

The cycle is shown on the display as SFPP and is a 4 minute, 270°F exposure with 20 minute dry to be used for porous items. The cycle uses three (3) stem-flush pressure pulses in the conditioning phase. This cycle is essentially the same as the WRAPPID / SFPP except it has one additional conditioning pulse for porous loads.

Steam-Flush Pressure Pulse Cycle Graph

The cycle graph shown can be used to interpret the operation of all three steam-flush cycles used on the Millennium sterilizer. The Millennium will operate in the same manner as a Century with respect to door control and sterilize phase operation. Differences occur during the conditioning phase and dry phase and are described in the following section. Please note the following when reviewing the cycle graph:

1. Pressure is shown in psia (absolute pressure). This is done for familiarity since the Joslyn brand sterilizers use psia on the display. The Millennium sterilizer can be programmed to display in either psia (absolute) or psig (gauge) by selecting the desired units in the CHANGE MACHINE SETUP menu. This is operator selectable but can be locked out with an access code. Note that if psia is selected, all cycles will display in psia, including Gravity and Prevac cycles. If psig is selected, all cycles will be displayed in psig, including the Steam-Flush cycles.

   Keep the relationship of psia and psig in mind when reviewing the descriptions that follow. Note that at sea level atmospheric pressure is about 14.7 psig while a gauge will read 0 psig. At higher elevations, atmospheric pressure may be 10 psia but a gauge will still read 0 psig.

2. The conditioning phase consists of a purge phase and two or three pulses, depending on the cycle selected. The cycle graph shows only one pulse as “Pulse #N“. Each of the two or three pulses are controlled in the same manner.

3. Purge phase description – the purge is factory set for 2 minutes and will be controlled so that pressure will not exceed 45 psia nor drop below 0.5 psi above atmospheric pressure. Once the 2 minutes has timed out, the unit will exhaust to just above atmospheric pressure and then the chamber will be flushed by cycling the S2 and S3 valves to maintain pressure in the chamber about 0.5 psi above atmospheric pressure, for 1.5 minutes. The cycle graph shows 15 psia as it assumes an atmospheric pressure of 14.5 psia. In higher elevations the pressure will be lower, but still 0.5 psi above atmospheric pressure. Once the timer times out the cycle progresses to the first pulse.

4. Pulse #N description – the unit charges with steam to 132°C setting. Once reached, the unit exhausts to just above atmosphere and then the chamber will be flushed by cycling the S2 and S3 valves to maintain pressure in the chamber about 1.5 psi above atmospheric. Note that the flush that occurs during the pulses will maintain chamber pressure about 1.0 psi higher that the flush that occurs during the purge phase. After 1.5 minutes the control continues with the next pulse until two or three pulses (depending on cycle) occur. After the last pulse the unit will charge to set temperature.

5. Dry phase – the steam-flush dry phase is identical to that of a standard Gravity and Prevac cycles except that the dry timer does not start until the chamber reaches 4.5 psia (about 10" Hg). The Prevac and Gravity cycles will start the dry timer at above atmospheric pressure.

6. S2 and S3 valve cycling – during the flushes the control will cycle the S2 and S3 valves to maintain pressure just above atmospheric in the chamber within 0.5 psi of set point. The control has a debounce feature that will prevent the valves from chattering more frequently than every 0.5 second.

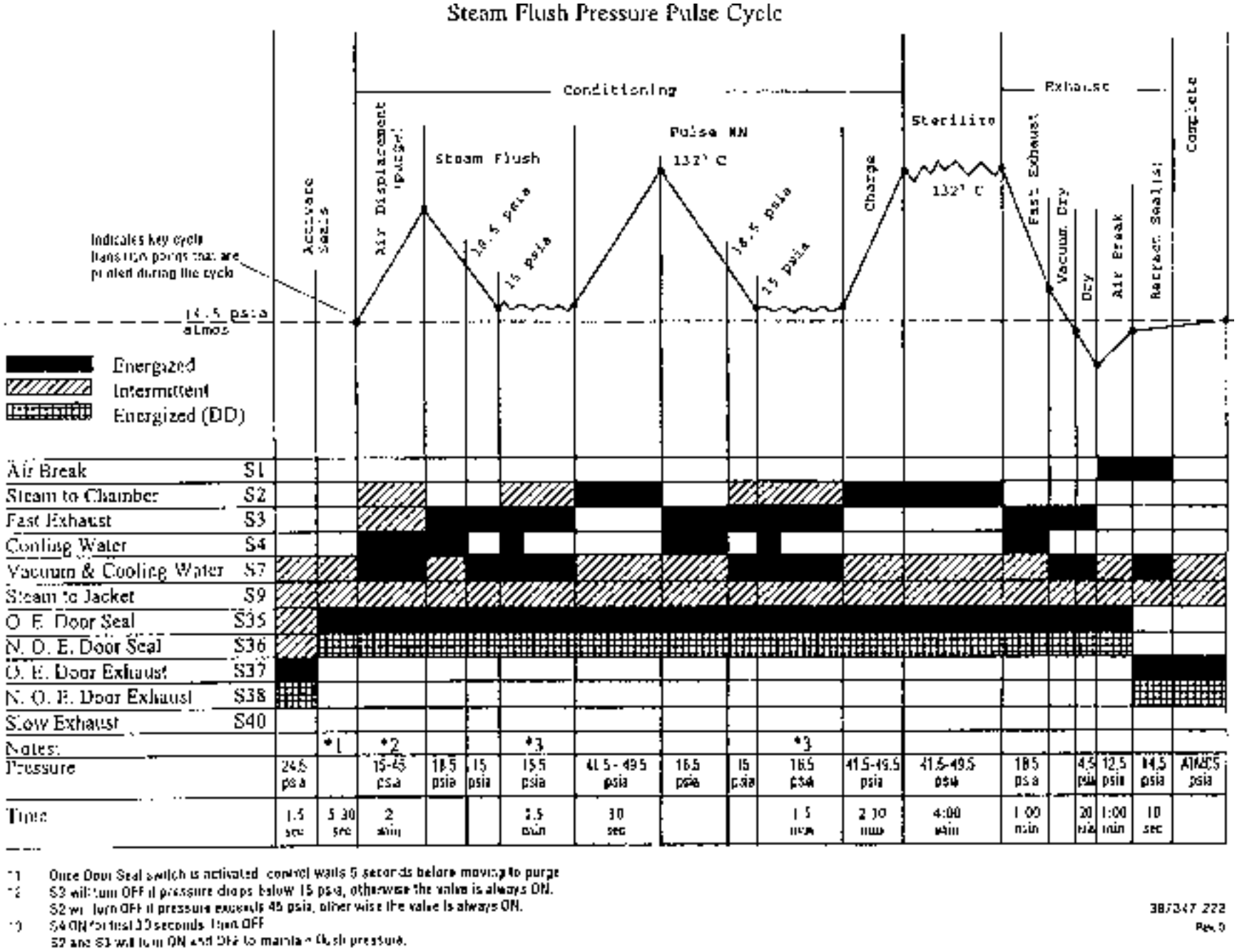


Figure 2-4. SFPP Cycle Graph

7. S4 and S7 valve cycling – at the beginning of each flush the S4 valve will turn on and stay on for 30 seconds to maintain a cool temperature of the waste water. After the 30 seconds the S7 valve will operate to maintain waste temperatures.

2.5 LEAK TEST CYCLE

NOTE: *S7 solenoid valve is used to control the waste water temperature below 140°F. S7 will turn on any time it is necessary to cool the waste temperature.*

NOTE: *Components shown in parentheses ( ) denote components used only on double door sterilizers.*

1. With the display showing the Main Menu, press the Leak Test Cycle button.
2. Connect absolute gauge to chamber. Keep ball valve closed at this time. Close door(s) if necessary.

2.5.1 Activate Seal(s)

S37 (38) (Door Exhaust) will be energized for 1.5 seconds. S35 (36) (Door Seal) will pulse during this time. After 1.5 seconds S37 (38) will be deenergized and S35 (36) will be energized. When the pressure behind the seal reaches 10 psig and after a 5 second delay, the cycle will advance to the Purge phase.

2.5.2 Purge

S2 (Steam to Chamber), S3 (Fast Exhaust), S4 (Cooling Water), and S35 (S36) will be on. S7 (Vacuum & Cooling Water) will pulse to maintain waste water temperature. S7 is normally off. S9 (Steam to Jacket) will be intermittent.

2.5.3 Vacuum Pulse

S2 turns off. After 4 psig is reached, S4 will turn off and S7 will turn on.

- S9 will be intermittent while controlling the jacket temperature. A vacuum will be pulled on the chamber for 1 minute (after 4 psig is reached) until 10 inHg is reached. After the second vacuum pulse the cycle advances to the Charge.

2.5.4 Pressure Pulse

S3 turns off. S2, S9 and S35 (36) will be on. Wait until the pressure reaches 26 psig. Vacuum pulse will repeat.

2.5.5 Charge

S3 and will go off. S2 will be on. S7 will be intermittent to maintain effluent temperature. S9 will be on unless the pressure is greater than 27 psig, at which time it will pulse. Verify that chamber is charging with steam and will charge until 270.1°F is reached.

2.5.6 Leak Test Evacuating

S2 will turn off. S3, S4 and S35 (36) will be on until 4 psig is reached. Then S4 turns off and S7 turns on. S9 will be intermittent while controlling the jacket temperature. Wait for 10 minutes.

NOTE: *If 20 inHg is not reached in 10 minutes, the Leak Test is aborted because of insufficient vacuum. The leak must be fixed and Leak Test repeated.*

2.5.7 Leak Test Stabilizing

S3 will turn off. S7 and S9 will be intermittent to maintain effluent and jacket temperatures. The chamber will stabilize for 2 minutes before starting the leak test count down.

2.5.8 Leak Test

S9 will be intermittent while controlling the jacket temperature. S7 may be intermittent while controlling the temperature of the waste water. The sterilizer will time for 10 minutes. At the end of 10 minutes S1 will turn on.

2.5.9 Air Break

S1, S35 (36) will be on. S7 and S9 may be intermittent while controlling the temperature of the waste water and jacket.

2.5.10 Retract Seal(s)

S35 (36) will turn off. S7, S37(38) will turn on. After the seal pressure switch opens (less than 10 psig), the vacuum will be pulled for an additional 18 seconds.

2.5.11 Complete

S37 (38) will be on; S7 will control waste temperature and S9 will maintain jacket temperature at approximately 270°F. S1 will turn off. A summary of the values attained during the cycle will be printed. Open the door(s).

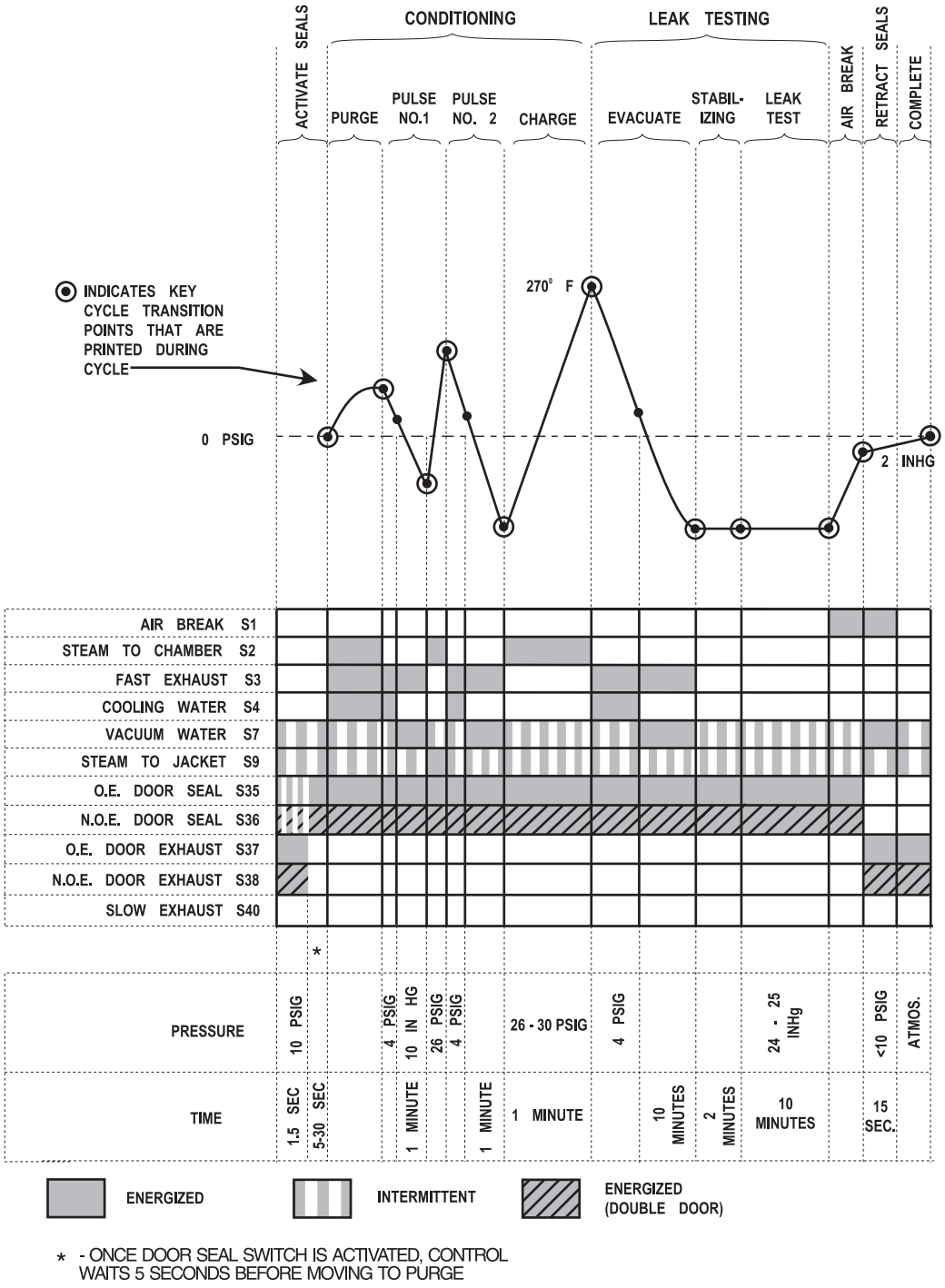


Figure 2-5. Vacuum Leak Cycle Graph

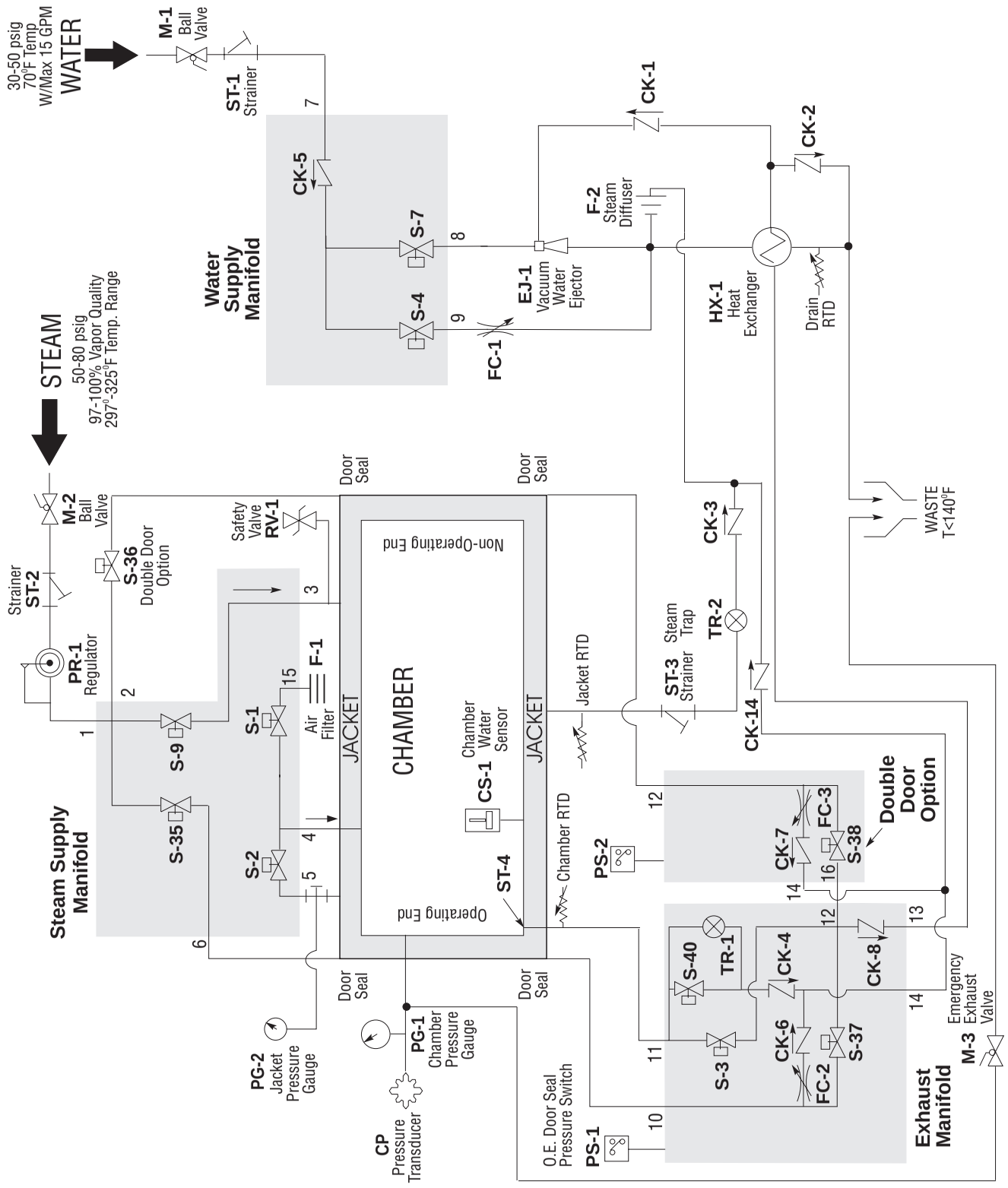


Figure 3-1. Piping Schematic for Health Care Century and Millennium Sterilizers

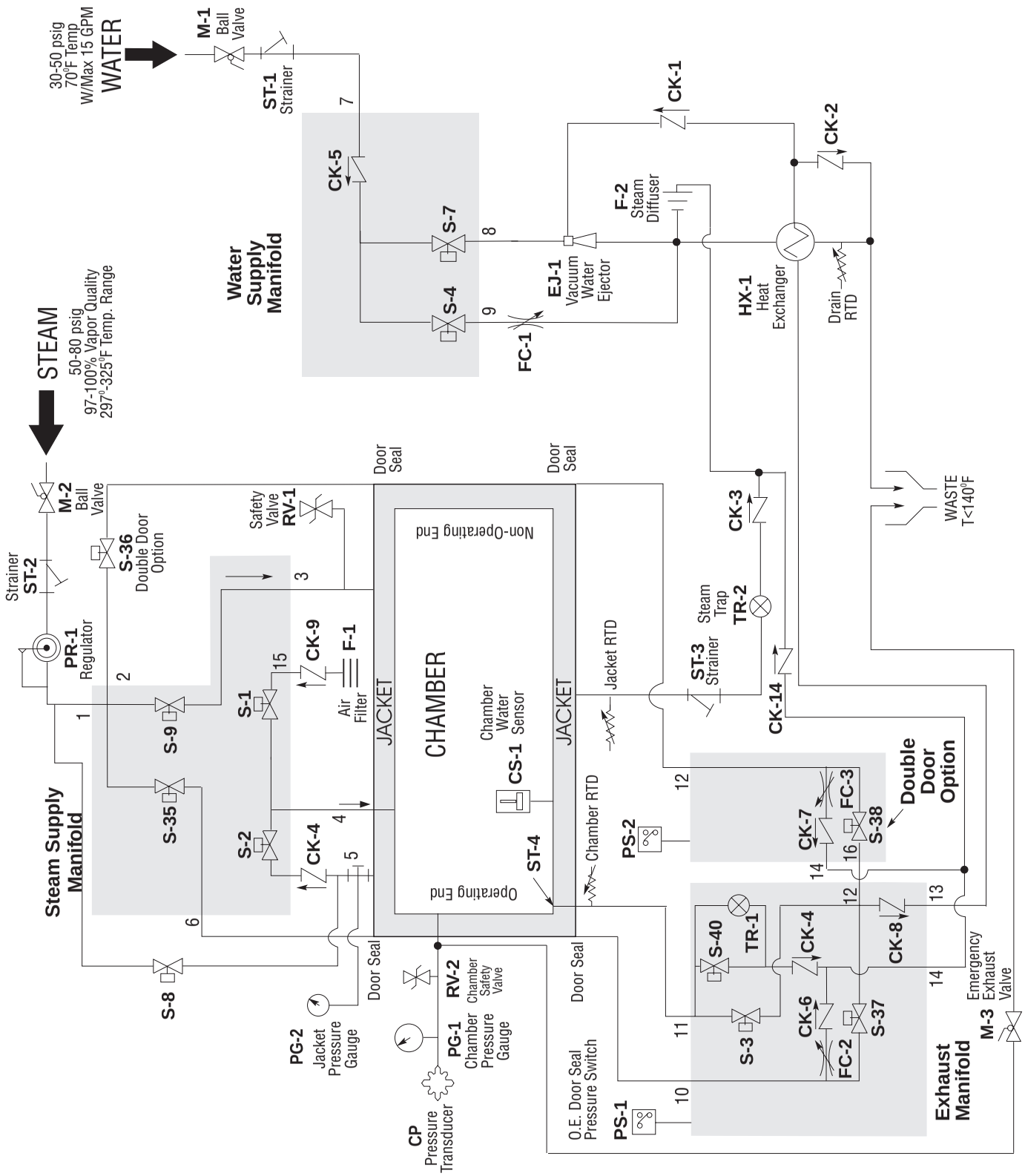


Figure 3-2. Piping Schematic for Scientific Century Sterilizers

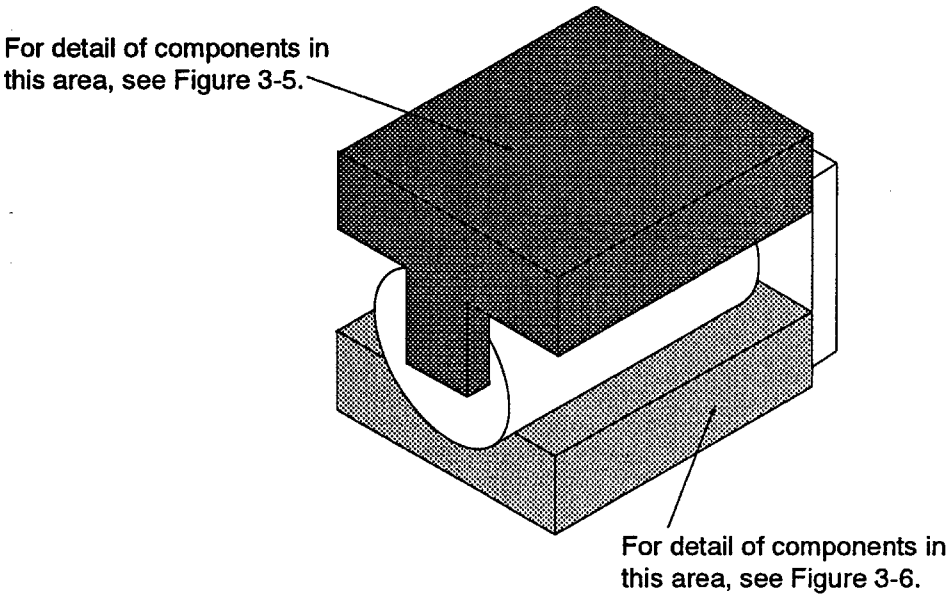


Figure 3-3. Single Door Piping Map

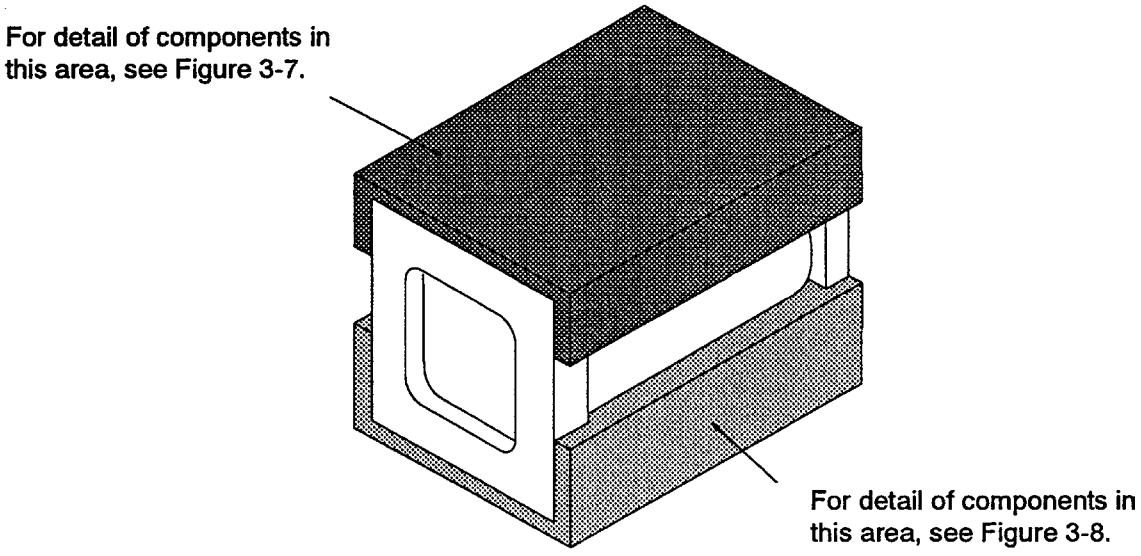


Figure 3-4. Double Door Piping Map

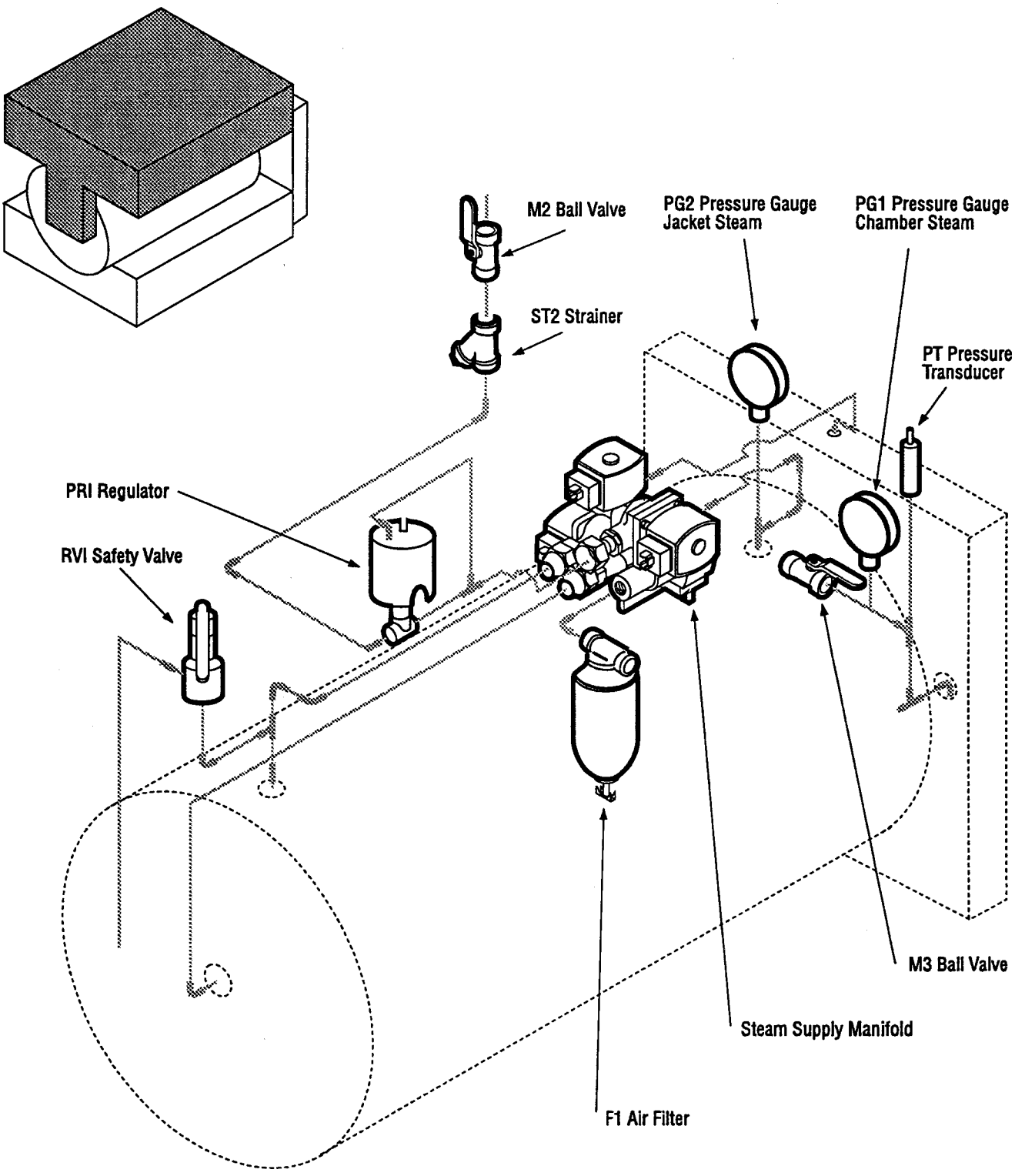


Figure 3-5. Single Door Upper Level Piping Components

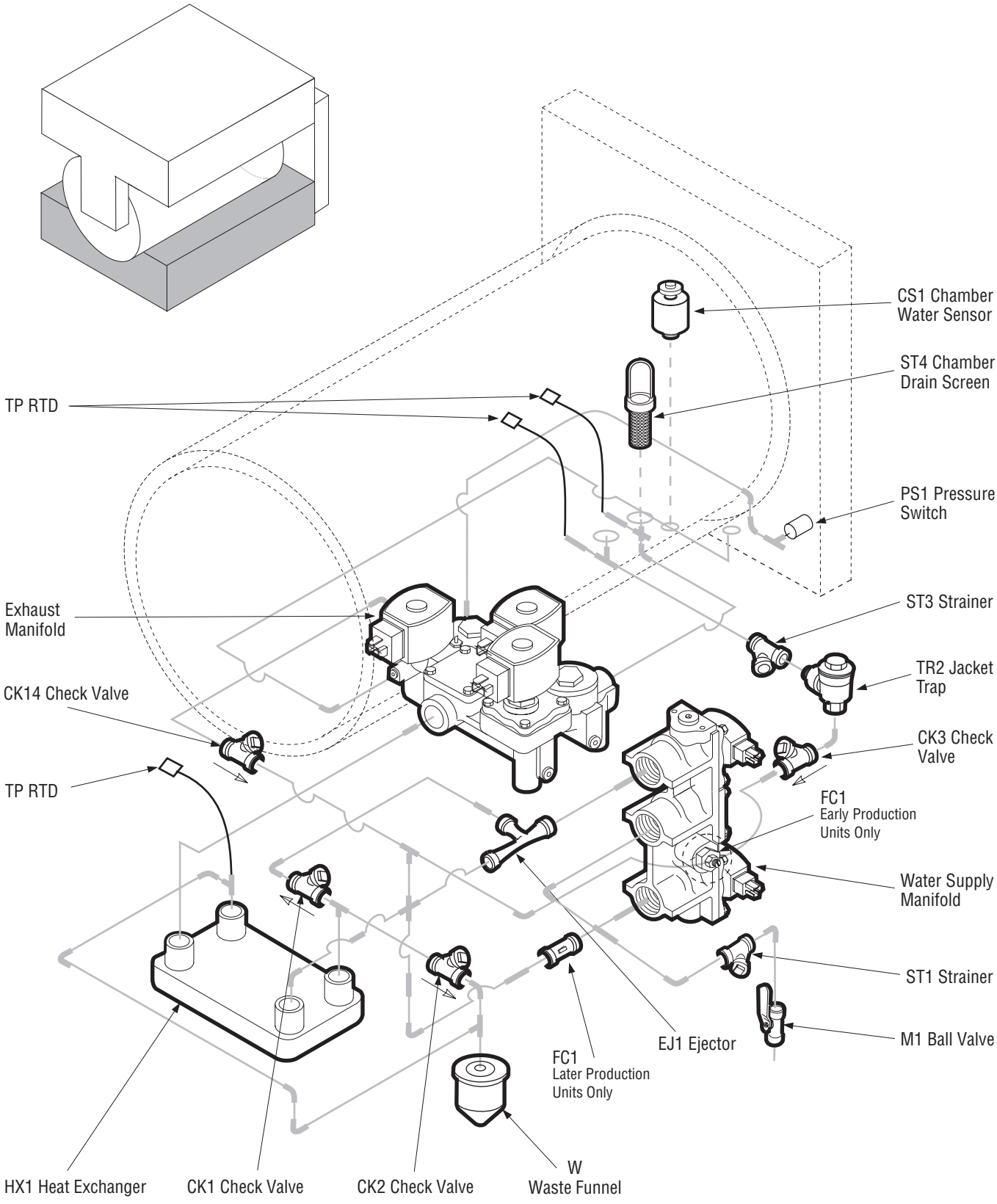


Figure 3-6. Single Door Lower Level Piping Components

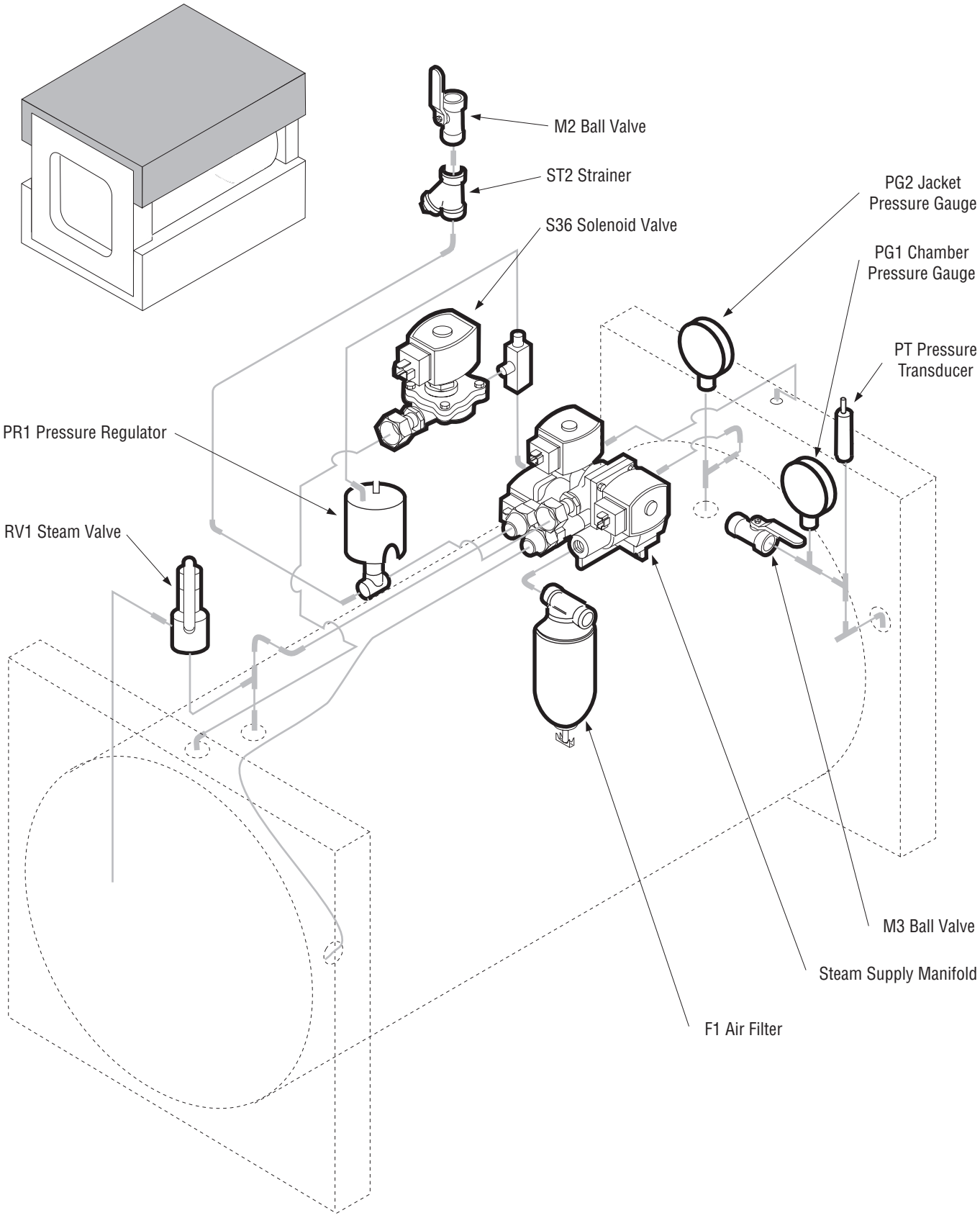


Figure 3-7. Double Door Upper Level Piping Components

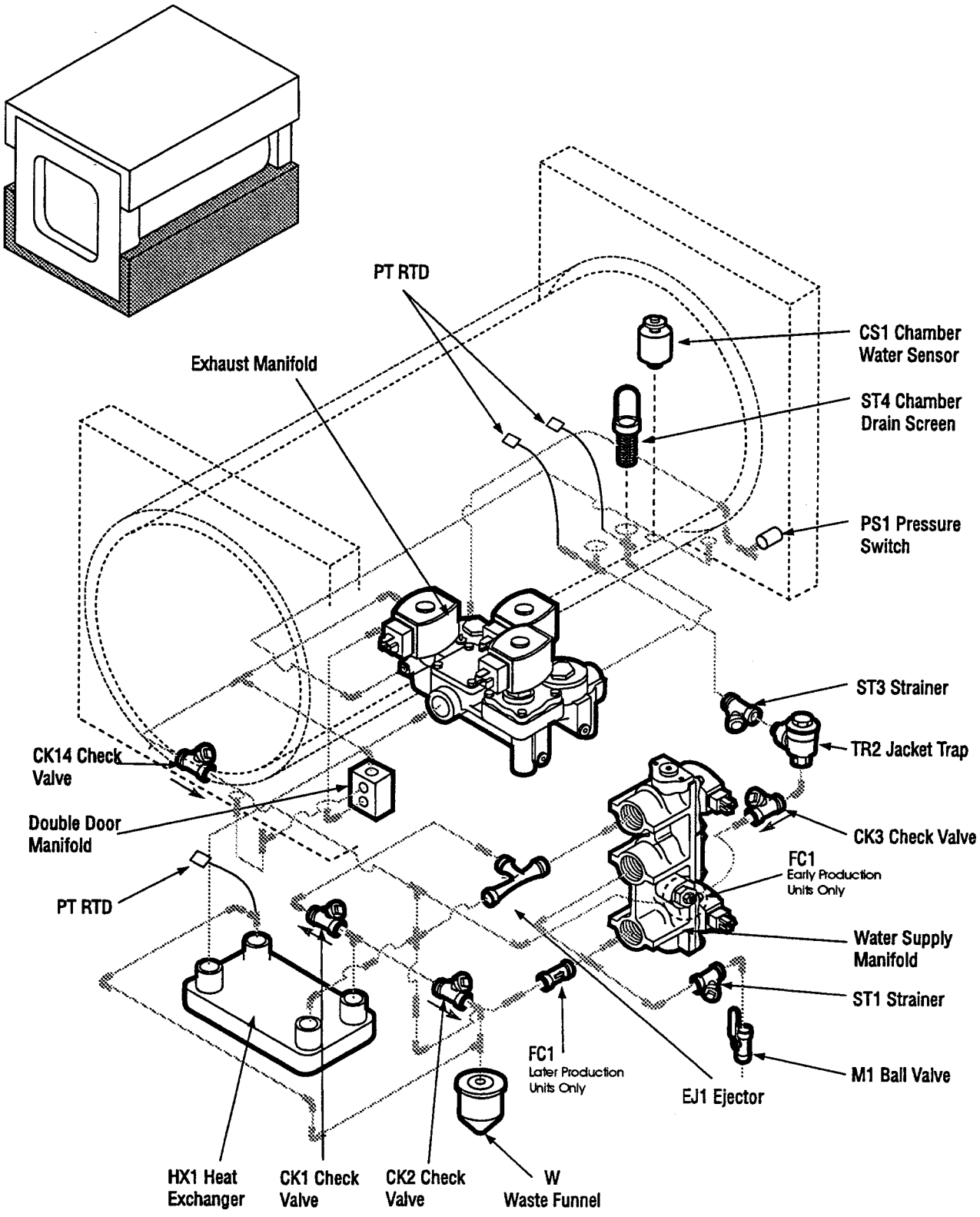


Figure 3-8. Double Door Lower Level Piping Components

Section 4: Electrical Components

4.1 CENTURY CONTROL THEORY OF OPERATION

The Century series sterilizer uses a control made up of the following sub-sections:

1. Main Control
2. Display
   - Operating End
   - Non Operating End
3. Analog Devices

4.1.1 Main Control

The Main Control is mounted behind the sterilizer access door, the Display Module is mounted on the access door and swings out with the door when opened. Analog devices are located in the piping. Connections between these items are by quick disconnect cables. The only hard wiring involved in the sterilizer is for the customer's 120 VAC power connection.

Refer to schematic 146657-782, 146657-867, and 146657-781 throughout the following:

Main Control - box has an access door fastened with 1/4 turn screws. Consists of the following:

4.1.2 Incoming Power Terminal Block

Three position block for connection of the 120 VAC incoming power. Power is fed into the box through a knock-out on the side or top of the control box. Block is located in the upper left hand corner of the control box.

4.1.3 Power Switch

ON/OFF switch to control power from terminal block to line filter. A parallel tap off the power switch feeds unfiltered 120 VAC to J13 on the Connector Board. This unfiltered 120 VAC is fed to P9 plug to power the steam generator. This is the only device on the Century sterilizer using unfiltered AC power.

4.1.4 Line Filter

Feeds fused (F3), filtered 120 VAC to J14 on the Connector Board. All components on the Century sterilizer, except for the feed to the steam generator, use filtered AC power.

4.1.5 Connector Board

Interfaces incoming 120 VAC, Power Supply, CPU board, I/O board, and all external components. The Connector Board contains only traces and connectors. There are no fuses or serviceable components on the board.

4.1.6 Power Supply

Receives filtered 120 VAC from J15A on the Connector Board at J3A on the Power Supply.

- Outputs on J3B are - 15V, +12V, +15V, and +5V.
- Outputs on J2 and J4 are +24V. The J2 powers the control box fan motor.
- There are 2 fuses on the power supply, Fl and F2. These fuses are on the incoming AC side of the power supply. If either fuse fails, it is due to a catastrophic internal failure of the power supply (eg, shorted transformer). The fuse does not blow due to an output overload or short circuit. If the fuse fails, the power supply is bad.
- The power supply is a switching type. Should an output overload occur (eg, short circuit on the output), the power supply automatically drops voltage to prevent power supply and circuit damage. Recovery after a fault is automatic on power up or power down.

4.1.7 CPU Board

The CPU board is made up of the following: CPU 8OC186EC high integration processor (U1), Flash Memory, A/D Converter, RAM Memory and Battery Back-up.

4.1.7.1 CPU Chip

The block layout of the CPU (U1) is shown in Figure 4-1. This design allows the unit to be connected to various computer devices, such as floppy disk drives, modems and desktop or portable personal computers. Unit now has the ability to be programed by a floppy disk, serial interface from a modem or personal computer.

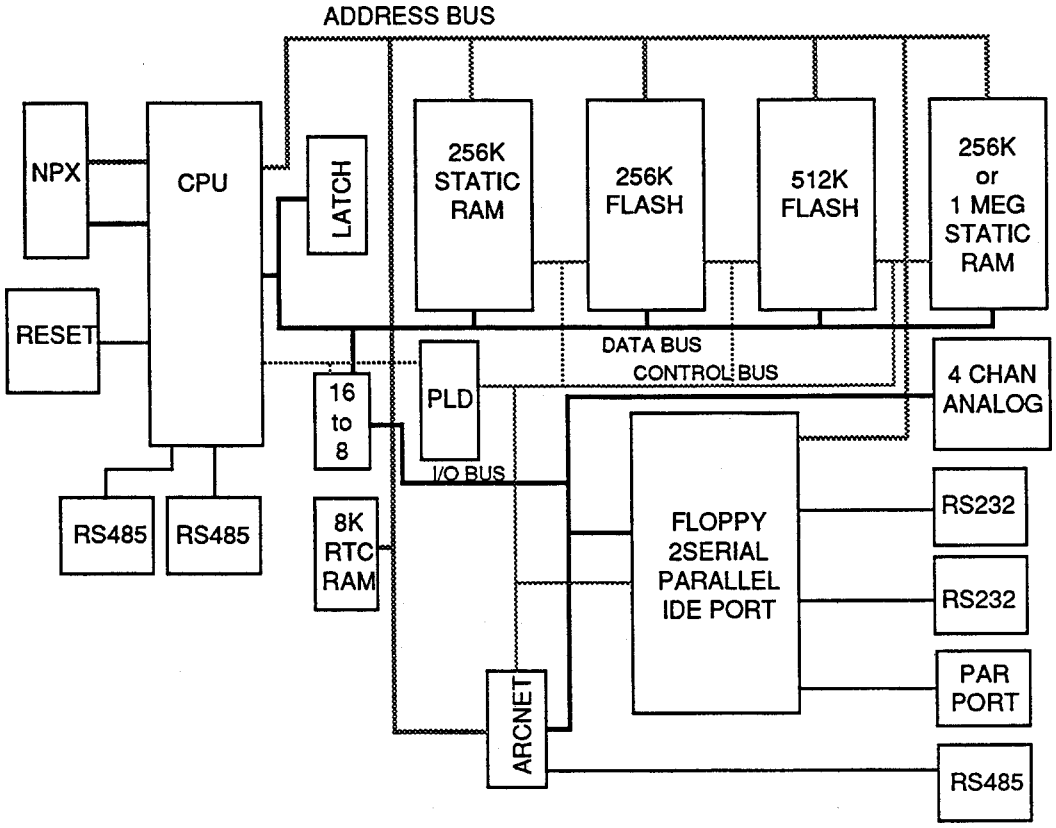


Figure 4-1. Block Diagram

The program language is C++, the most popular language used in industry. The CPU chip is soldered in and is not field replaceable.

4.1.7.2 Flash Memory

The controller is designed with Flash memory and Static RAM memory. Flash memory is very similar to the EPROM type memory used in Amsco 3000 series controls, in that the memory is electrically erasable and re-programmable. Flash memory can be reprogrammed electrically from a remote location, floppy disc, host computer or individually. The Flash Memory consists of four removable chips: U12, U13, U15 and U16. Location, identification and orientation are shown in Figure 4-2.

4.1.7.3 Static RAM

The RAM on the board consists of up to 2 chips U3 and U1 1. The RAM does not contain the battery back-up and is soldered on the board. All RAM memory functions are controlled by the CPU.

4.1.7.4 A/D Converter

The A/D converter is a 4 channel 12 bit converter that allows various input configurations. The U27 chip can be replaced if defective.

4.1.7.5 Battery Back-up

The RAM is backed up by the battery chip U2. It contains Nickel Cadmium batteries. Battery life is 8 years with the control powered up 16 hours per day. The batteries' shelf life is 10 years. The battery can be replaced without losing memory.

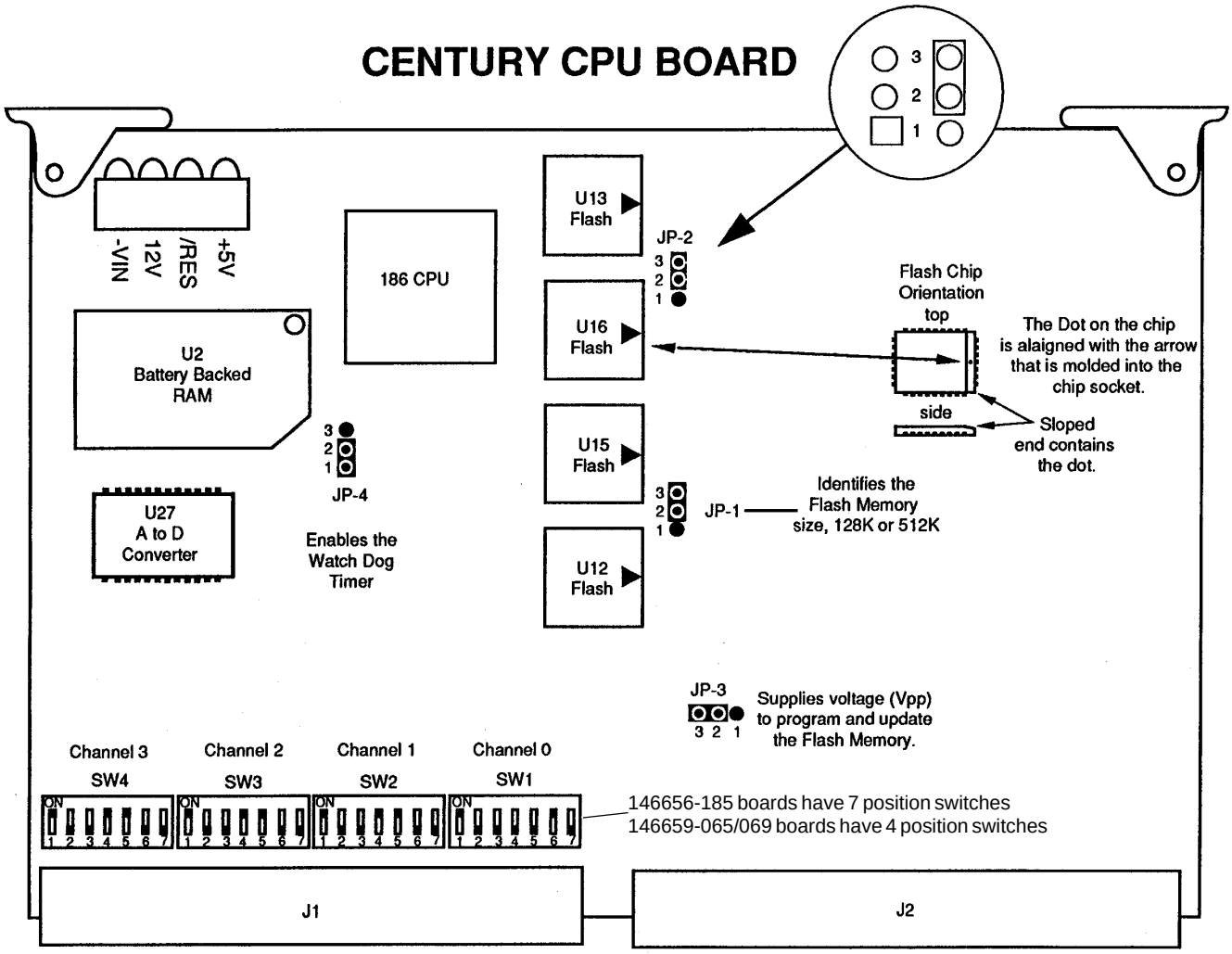
4.2 MAIN CONTROL - CPU BOARD

4.2.1 CPU Board Setup

Early Century sterilizers used 146656-185 CPU boards. Current Century sterilizers use 146659-065 or 069 CPU boards. Replacement CPU Boards are unprogrammed. To use it, it is necessary to transfer the Flash chips from the original board and install them in the new CPU board or install a new programmed chip set.

4.2.2 Flash Chip Change

Use PLCC Puller Part # 764326-559 (also available at Radio Shack) to extract the chips. Instructions are included with the PLCC Puller on its proper use. Use static protection when replacing all chips.



NOTES:

1. Use chip Extractor, P-764326-559, to remove the Flash Memory from the socket.
2. See text for dip switch settings.
3. Replacement CPU boards do not have an application program installed.
4. Later revision of the board contain wire jumpers that are soldered onto the board.

Figure 4-2. Century CPU Board

The FLASH memory consists of four chips: U12, U13, U15 & U16. The memory is split into high and low bytes, U12 & U16 contain high and U13 & U15contain the low bytes. The control will not work correctly if these chips are not installed in the correct order.

When installing the Flash chips into the socket, be sure to pay attention to the orientation of the chip in the socket. The dot on the chip must be aligned with the arrow molded into the side of the socket. See Figure 4-2

4.2.3 Jumpers

Early 146656-185 boards used plug in jumpers. The proper settings are described later in this section.

Current 146656-185 boards have jumpers soldered in place, no adjustment is possible.

Current 146659-065 / 069 boards use jumpers for JP-1 and JP-2. The proper settings are described later in this section.

4.2.4.1 JP-1 & JP-2, 146656-185 Boards Only

These two jumpers are used to distinguish between the two sizes of Flash memory chips that are available, 128k or 256k. If the pins 1,2 are jumped, 256k memory is installed on the board. If pins 2, 3 are jumped, 128k memory is installed on the board. The current configuration of JP-1 & JP-2 is 128k memory and has pins 2, 3 jumped.

4.2.4.2 JP-1 & JP-2, 146659-065/069 Boards Only

These two jumpers are used to distinguish between the two types of transducers. For standard pressure transducers, pins 2, 3 are jumpered for both JP-1 and JP-2. For special transducers used in VHP applications, pins 1, 2 are jumpered for both JP-1 and JP-2.

4.2.5 JP-3

This jumper determines if Flash re-programming is enabled or disabled. On the Century controls, the Flash memory can be programmed without removing the board. The current configuration of JP-3 is Flash re-programming enabled and has pins 2, 3 jumped.

4.2.6 JP-4

This jumper enables or disables the Watchdog circuitry. The Watchdog Circuit monitors the timing pulses from the CPU. If these pulses are interrupted, all outputs are disabled by this circuit and is considered a safety device. The Watchdog is to be enabled at all times. Pins 1, 2 jumped enable the Watchdog and is the correct position for this jumper.

4.2.7 Dip Switches

Four sets of dip switches are located on the CPU Board. Each group of switches are used to configure one of the analog channels to the type of temperature or pressure sensing device used on the unit. See Figure 4-2 for location of switches.

Which switch configure which analog channels is in the following table:

SW1 Channel 0

SW2 Channel 1

SW3 Channel 2

SW4 Channel 3

The following applies to 146656-185 boards only.

The dip switch configuration for each Analog Channel: x = ON

Function	Dip-Switch Positions			
	1	2	3	4
1. 3 wire RTD & pressure transducer	x	-	-	-
2. 4 - 20 mA	x	-	x	-
3. 0 - 10 V (VHP only)	-	x	-	-
4. 2 wire RTD	x	-	-	x

Health Care and standard Scientific units configuraion: All switches - Position 1 ON, the rest are OFF.

The dip switch configuration for each Analog Channel: x = ON

Function	Dip-Switch Positions						
	1	2	3	4	5	6	7
1. RTD (100)	x	-	-	x	x	-	-
2. Strain Gage (0 to 800 mV)	x	-	-	-	-	x	0
3. 0 to 1V	-	x	-	-	-	x	0
4. 0 to 10V	-	x	-	-	-	x	0
5. 4 - 20 ma	x	-	x	-	-	x	0

Standard Health Care units use function 1, 2 only. The remaining functions are used primarily in scientific and Industrial units.

Health care and standard scientific dip-switch configuration:

SWI 1,6 ON the rest OFF Chamber Pressure Transducer J23

SW2 1,4,5 ON; the rest OFF Chamber RTD J24

SW3 1,4,5 ON; the rest OFF Jacket RTD J21

SW4 1,4,5 ON; the rest OFF Waste RTD J22

Special Scientific with non standard pressure transducer dip switch configuration:

SW1 1,3,6,7 ON; the rest OFF Chamber Press. Trans. 4 to 20mA..... J23

SW2 1,4,5 ON; the rest OFF Chamber RTD J24

SW3 1,4,5 ON; the rest OFF Jacket RTD J21

SW4 1,4,5 ON; the rest OFF Waste RTD J22

See Figure 4-3 for typical circuits used for sensors

The following applies to 146656-065 boards only.

These boards do not have dip switchs. The connector board provides the necessary wiring connectors that are normally provided by the dip switches. The same connector board is used on standard Health Care and Scientific units. Special units will have their own specific connector board.

4.2.8 LED Display on CPU Board

Four LED's are located on the CPU Board. Under normal conditions LED #1 (-VIN), LED #2 (+12V) & LED #4 (+12V) are ON. LED #3 (/RES) is ON only during a RESET condition. When the control is turned on, the RESET light should blink on and then remain OFF. See Figure 4-2 for LED identification.

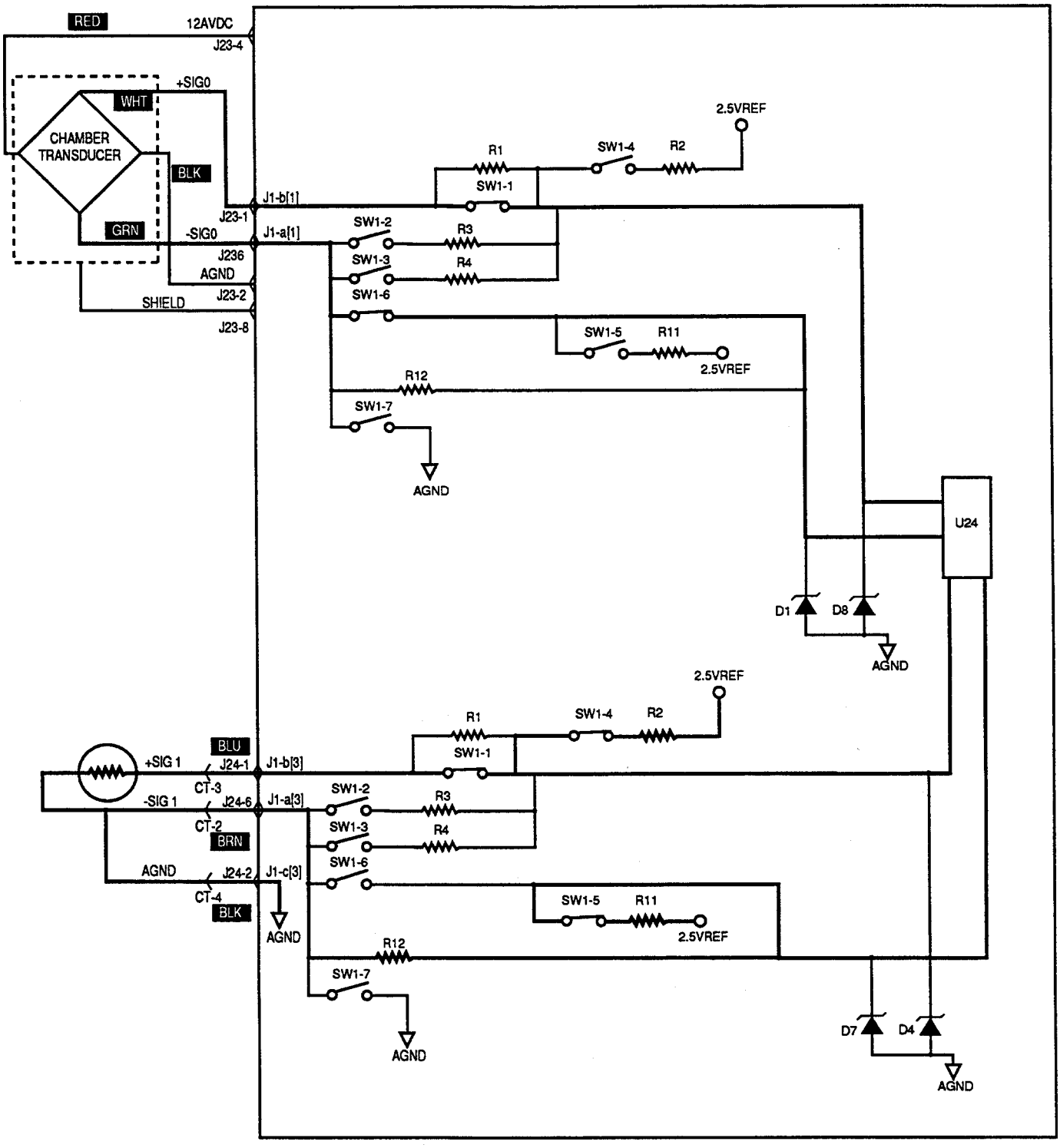
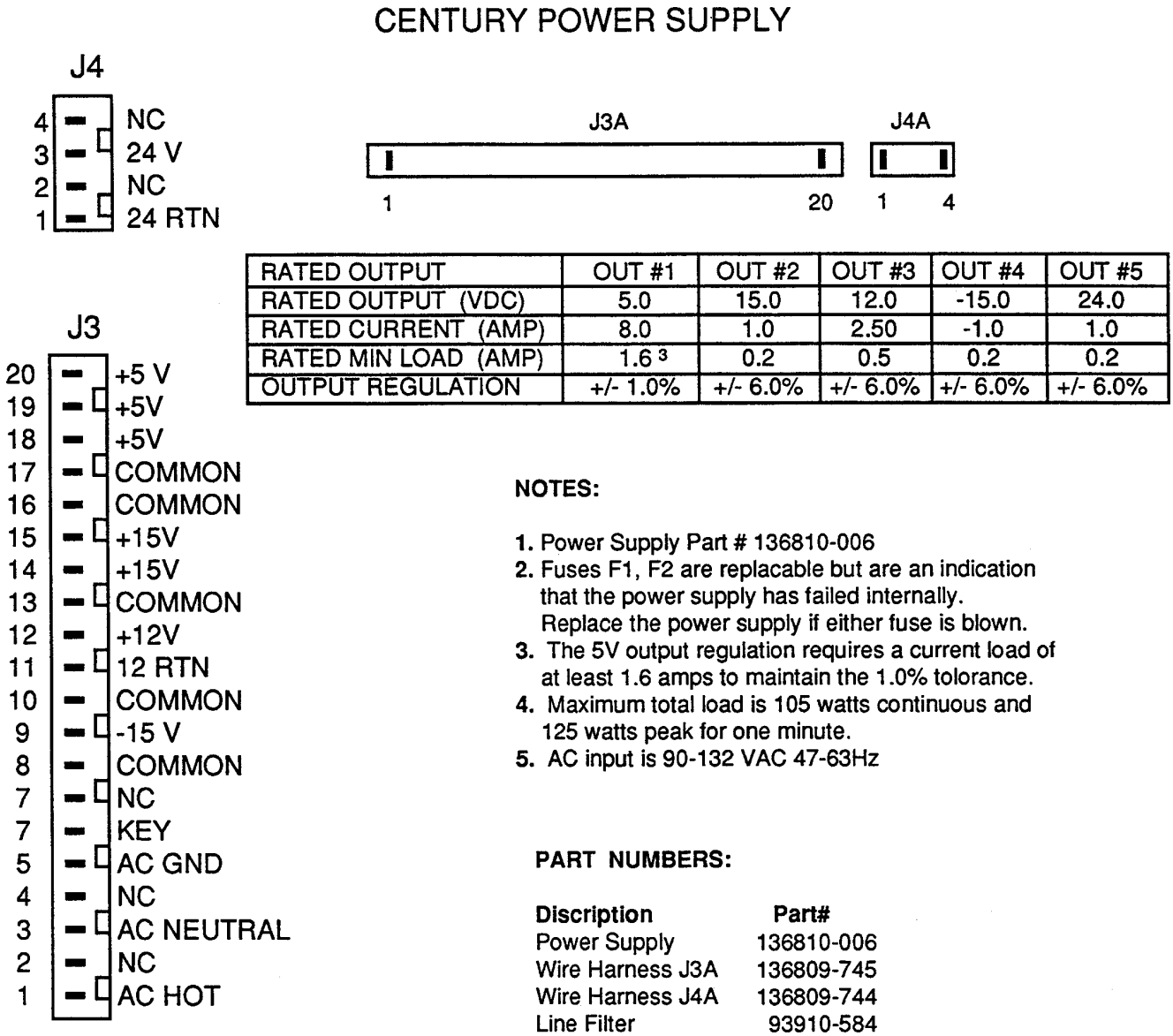


Figure 4-3. Circuits

4.3 MAIN CONTROL – POWER SUPPLY



RATED OUTPUT	OUT #1	OUT #2	OUT #3	OUT #4	OUT #5
RATED OUTPUT (VDC)	5.0	15.0	12.0	-15.0	24.0
RATED CURRENT (AMP)	8.0	1.0	2.50	-1.0	1.0
RATED MIN LOAD (AMP)	1.6 [3]	0.2	0.5	0.2	0.2
OUTPUT REGULATION	+/- 1.0%	+/- 6.0%	+/- 6.0%	+/- 6.0%	+/- 6.0%

NOTES:

1. Power Supply Part # 136810-006
2. Fuses F1, F2 are replacable but are an indication that the power supply has failed internally. Replace the power supply if either fuse is blown.
3. The 5V output regulation requires a current load of at least 1.6 amps to maintain the 1.0% tolorance.
4. Maximum total load is 105 watts continuous and 125 watts peak for one minute.
5. AC input is 90-132 VAC 47-63Hz

PART NUMBERS:

Discription	Part#
Power Supply	136810-006
Wire Harness J3A	136809-745
Wire Harness J4A	136809-744
Line Filter	93910-584
Fuse F1 (4A)	764317-825
Fuse F2 (4A)	764317-825
Fuse F3 (5A)	764317-463

Figure 4-4. Century Power Supply

4.4 MAIN CONTROL – I/O BOARD

4.4.1 OVERVIEW

The Century I/O board processes all the inputs (LS switches) and all outputs (triac drivers). All Century controls require at least one I/O board. A double door unit requires 2 I/O boards. Each I/O board contains 16 output drivers and 16 input circuits.

Two type of drivers are used: a dip relay and a solid state driver. The relays are used as individual switched neutrals. The solid state drivers are triacs and are used to supply power to the various valves and motors. Each of the output circuits is protected by a 0.8 Amp fuse. The relays and fuses are replaceable. Depending on the type of output device required, a corresponding dip switch must be configured. Two sets of dip switches SW-2 and SW-3, are used for this configuration. If the dip switch is turned OFF, a solid state driver is selected. If the dip switch is turned ON, a relay device is selected.

Early versions of the I/O board did not have fuses to protect the individual output circuits. Fuses were added to prevent damage to the board in the case of a shorted valve coil on current I/O boards.

LEDs on the edge of the I/O board indicate the status of the outputs and inputs. See Figure 4-5, -6, -7 & -8 for LED layout. Figures 4-5 & 4-6 show layout of early boards without fuses. Figure 4-7 & 4-8 show boards with fuses. LED and driver designations changed between the old and current board. When troubleshooting, make sure to identify the board configuration. LEDs that indicate the status of the output circuit are actually wired in parallel and indicate that the driver has received a signal to turn on. It does not indicate the actual status of the output. It is possible for the LED to indicate that an output is turned on even if the output circuit has failed at the driver.

4.4.2 I/O CONFIGURATION

Dip switches are used to configure the board to the correct serial address. There are three I/O board configurations: 146659-005 without fuses, 146659-005 with fuses, and 146659-066. Each are set differently as follows:

146659-005 boards without fuses

I/O #1 – SW1: all OFF; SW2: 1, 2, 3 ON; SW3: 1 ON

I/O #2 – SW1: all OFF; SW2: 1, 2, 3 ON; SW3: 2 ON

146659-005 boards with fuses

I/O #1 – SW1: 1, 8 ON; SW2: all OFF; SW3: 1, 2, 3 ON

I/O #2 – SW1: 2, 8 ON; SW2: all OFF; SW3: 1, 2, 3 ON

146659-006 boards (Note – board has only one dip switch)

I/O #1 SW1: 1 ON

I/O #2 SW1: 2 ON

Dip Switch #1 (SW-1) is used to configure the board to the correct serial address:

I/O #1

Old design without fuses (rev 0, 1)		New design with fuses (rev 2 and higher)	
SW1	all OFF	SW1	1, 8 ON
SW2	1, 2, 3 ON	SW2	all OFF
SW3	1 ON	SW3	1, 2, 3 ON

I/O #2 (double door and isothermal units only)

Old design without fuses (rev 0, 1)		New design with fuses (rev 2 and higher)	
SW1	all OFF	SW1	2, 8 ON
SW2	1, 2, 3 ON	SW2	all OFF
SW3	2 ON	SW3	1, 2, 3 ON

4.4.2 Jumper

Only 146659-005 boards aue a jumper.

There is only one jumper on the I/O board (JP-1) and it used to enable the Watch Dog Timer circuit. Its correct position is across pins 2 and 3.

1

Early revision board without fuses (SD & DD units)

LED	DRIVEN COMPONENT	DRIVER ON BOARD	DRIVER P/N	* DRIVER ON SCHEMATIC
D15	OE DOOR OPEN	U12	129361-870	AC15
D14	S 40 DUAL EXHAUST	U11	129361-870	AC14
D13	OE DOOR CLOSE	U10	129361-870	AC13
D12	S37 OE SEAL EXHAUST	U9	129361-870	AC12
D11	S03 CHAMBERDRAIN	U8	129361-870	AC11
D10	S07 VACUUM WATER	U7	129361-870	AC10
D9	S04 COOLING WATER	U6	129361-870	AC9
D8	STEAM GENERATOR	U5	129361-870	AC8
D7	S09 STEAM TO JACKET	U20	129361-870	AC7
D6	S01 AIR BREAK	U19	129361-870	AC6
D5	VR-1 (SD)S36 (DD) DOOR SEAL	U18	129361-870	AC5
D4	S35 OE DOOR SEAL	U17	129361-870	AC4
D3	S02 STEAM TO CHAMBER	U16	129361-870	AC3
D2	SWITCHED NEUTRAL S36	U15	129367-542	AC2
D1	SWITCHED NEUTRAL S35	U14	129367-542	AC1
D0	SWITCHED NEUTRAL S02	U13	129367-542	AC0
12V	+ 12 VISO SUPPLY			
15V	12 VDC SUPPLY			
CF	COMMUNICATIONS			
5V	5 VDC SUPPLY			

LED	HARDWARE SWITCH ID ON STERILIZER	LIMIT SWITCH ID.* ON SCHEMATIC
S16	NOT USED	NOT USED
S15	NOT USED	NOT USED
S14	NOT USED	NOT USED
S13	NOT USED	NOT USED
S12	NOT USED	NOT USED
S11	NOT USED	NOT USED
S10	NOT USED	NOT USED
S9	NOT USED	NOT USED
S8	LS4 DOOR B FOOT PEDAL	LS7
S7	LS3 DOOR A FOOT PEDAL	LS6
S6	LS2 DOOR B CLOSED	LS5
S5	LS1 DOOR A CLOSED	LS4
S4	NC	NOT USED
S3	PS2 DOOR B SEAL SWITCH	LS2
S2	PS1 DOOR A SEAL SWITCH	LS1
S1	CS1 FLOODED CHAMBER	LS0

* REFERENCE SCHEMATIC
146657-781 (SINGLE DOOR)
146657-867 (DOUBLE DOOR)

Figure 4-5. I/O Board, #1 LED Designations

Early revision board without fuses (DD only)

LED	DRIVEN COMPONENT	DRIVER ON BOARD	DRIVER P/N	* DRIVER ON SCHEMATIC
D15	S38 NOE SEAL EXHAUST	U12	129361-870	AC15
D14	S 8 STEAM TO CHAM. (ISO)	U11	129361-870	AC14
D13	NOT USED	U10	129361-870	AC13
D12	NOT USED	U9	129361-870	AC12
D11	NOT USED	U8	129361-870	AC11
D10	NOT USED	U7	129361-870	AC10
D9	NOT USED	U6	129361-870	AC9
D8	NOT USED	U5	129361-870	AC8
D7	NOE DOOR CLOSE	U20	129361-870	AC7
D6	VR-2	U19	129361-870	AC6
D5	VR-1 (DD)**	U18	129361-870	AC5
D4	NOE DOOR OPEN	U17	129361-870	AC4
D3	NOT USED	U16	129361-870	AC3
D2	NOT USED	U15	129367-542	AC2
D1	NOT USED	U14	129367-542	AC1
D0	NOT USED	U13	129367-542	AC0
12V	+ 12 VISO SUPPLY ***			
15V	12 VDC SUPPLY			
CF	COMMUNICATIONS			
5V	5 VDC SUPPLY			

LED	HARDWARE SWITCH ID ON STERILIZER	LIMIT SWITCH ID.* ON SCHEMATIC
S16	NOT USED	NOT USED
S15	NOT USED	NOT USED
S14	NOT USED	NOT USED
S13	NOT USED	NOT USED
S12	NOT USED	NOT USED
S11	NOT USED	NOT USED
S10	NOT USED	NOT USED
S9	NOT USED	NOT USED
S8	NOT USED	NOT USED
S7	NOT USED	NOT USED
S6	NOT USED	NOT USED
S5	NOT USED	NOT USED
S4	NOT USED	NOT USED
S3	NOT USED	NOT USED
S2	NOT USED	NOT USED
S1	NOT USED	NOT USED

* REFERENCE SCHEMATIC
146657-781 (SINGLE DOOR)
146657-867 (DOUBLE DOOR)

** ON A DOUBLE DOOR, U18 DRIVES COMPONENT VR-1.

*** PAY PARTICULAR ATTENTION TO THE LEDs THAT INDICATE VOLTAGES AND COMMUNICATION STATUS.

Figure 4-6. I/O Board, #2 LED Designations

Current revision board with fuses (SD & DD Units)

LED	DRIVEN COMPONENT	DRIVER ON BOARD	DRIVER P/N	* DRIVER ON SCHEMATIC	FUSE
D16	OE DOOR OPEN	DRV16	129361-870	AC15	F16
D15	S 40 DUAL EXHAUST	DRV15	129361-870	AC14	F15
D14	OE DOOR CLOSE	DRV14	129361-870	AC13	F14
D13	S37 OE SEAL EXHAUST	DRV13	129361-870	AC12	F13
D12	S03 CHAMBER DRAIN	DRV12	129361-870	AC11	F12
D11	S07 VACUUM WATER	DRV11	129361-870	AC10	F11
D10	S04 COOLING WATER	DRV10	129361-870	AC9	F10
D9	STEAM GENERATOR	DRV9	129361-870	AC8	F9
D8	S09 STEAM TO JACKET	DRV8	129361-870	AC7	F8
D7	S01 AIR BREAK	DRV7	129361-870	AC6	F7
D6	VR1 (SD) S36(DD)**	DRV6	129361-870	AC5	F6
D5	S35 OE DOOR SEAL	DRV5	129361-870	AC4	F5
D4	S02 STEAM TO CHAMBER	DRV4	129361-870	AC3	F4
D3	SWITCHED NEUTRAL S36	DRV3	129367-542	AC2	F3
D2	SWITCHED NEUTRAL S35	DRV2	129367-542	AC1	F2
D1	SWITCHED NEUTRAL S02	DRV1	129367-542	AC0	F1
12V	+ 12 VISO SUPPLY ***				
15V	12 VDC SUPPLY				
CF	COMMUNICATIONS				
5V	5 VDC SUPPLY				

LED	HARDWARE SWITCH ID ON STERILIZER	LIMIT SWITCH ID.* ON SCHEMATIC
S16	NOT USED	NOT USED
S15	NOT USED	NOT USED
S14	NOT USED	NOT USED
S13	NOT USED	NOT USED
S12	NOT USED	NOT USED
S11	NOT USED	NOT USED
S10	NOT USED	NOT USED
S9	NOT USED	NOT USED
S8	LS4 DOOR B FOOT PEDAL	LS7
S7	LS3 DOOR A FOOT PEDAL	LS6
S6	LS2 DOOR B CLOSED	LS5
S5	LS1 DOOR A CLOSED	LS4
S4	NC	NOT USED
S3	PS2 DOOR B SEAL SWITCH	LS2
S2	PS1 DOOR A SEAL SWITCH	LS1
S1	CS1 FLOODED CHAMBER	LS0

* REFERENCE SCHEMATIC
146657-781 (SINGLE DOOR)
146657-867 (DOUBLE DOOR)

** ON A SINGLE DOOR, DRV6 DRIVES COMPONENT VR-1. ON A DOUBLE DOOR, DRV6 DRIVES S36 (NOE DOOR SEAL)

*** PAY PARTICULAR ATTENTION TO THE LEDs THAT INDICATE VOLTAGES AND COMMUNICATION STATUS.

FUSE PART NUMBER
129363-928

Figure 4-7. I/O Board, #3 LED Designations

Current revision board with fuses (DD only)

LED	DRIVEN COMPONENT	DRIVER ON BOARD	DRIVER P/N	* DRIVER ON SCHEMATIC	FUSE
D16	S38 NOE SEAL EXHAUST	DRV16	129361-870	AC15	F16
D15	S 8 STEAM TO CHAM. (ISO)	DRV15	129361-870	AC14	F15
D14	NOT USED	DRV14	129361-870	AC13	F14
D13	NOT USED	DRV13	129361-870	AC12	F13
D12	NOT USED	DRV12	129361-870	AC11	F12
D11	NOT USED	DRV11	129361-870	AC10	F11
D10	NOT USED	DRV10	129361-870	AC9	F10
D9	NOT USED	DRV9	129361-870	AC8	F9
D8	NOE DOOR CLOSE	DRV8	129361-870	AC7	F8
D7	VR-2	DRV7	129361-870	AC6	F7
D6	VR-1 (DD)**	DRV6	129361-870	AC5	F6
D5	NOE DOOR OPEN	DRV5	129361-870	AC4	F5
D4	NOT USED	DRV4	129361-870	AC3	F4
D3	NOT USED	DRV3	129367-542	AC2	F3
D2	NOT USED	DRV2	129367-542	AC1	F2
D1	NOT USED	DRV1	129367-542	AC0	F1
12V	+ 12 VISO SUPPLY ***				
15V	12 VDC SUPPLY				
CF	COMMUNICATIONS				
5V	5 VDC SUPPLY				

LED	HARDWARE SWITCH ID ON STERILIZER	LIMIT SWITCH ID. ON SCHEMATIC
S16	NOT USED	NOT USED
S15	NOT USED	NOT USED
S14	NOT USED	NOT USED
S13	NOT USED	NOT USED
S12	NOT USED	NOT USED
S11	NOT USED	NOT USED
S10	NOT USED	NOT USED
S9	NOT USED	NOT USED
S8	NOT USED	NOT USED
S7	NOT USED	NOT USED
S6	NOT USED	NOT USED
S5	NOT USED	NOT USED
S4	NOT USED	NOT USED
S3	NOT USED	NOT USED
S2	NOT USED	NOT USED
S1	NOT USED	NOT USED

* REFERENCE SCHEMATIC
146657-781 (SINGLE DOOR)
146657-867 (DOUBLE DOOR)

** ON A DOUBLE DOOR, DRV6 DRIVES COMPONENT VR-1.

*** PAY PARTICULAR ATTENTION TO THE LEDs THAT INDICATE VOLTAGES AND COMMUNICATION STATUS.

Figure 4-8. I/O Board, #4 LED Designations

4.5 DISPLAY

The Operating End (OE) and Non-operating End (NOE) controls are similar, first discussed will be the OE control. It consists of the following items:

4.6 TOUCH SCREEN

This is a 1/8-inch, thick clear plastic grid which has 64 switches, arranged in a 8 x 8 square. Pressing on the grid actuates the switch in a way similar to a membrane type key pad. However the switch closure is not like a mechanical switch. When the switch is OPEN, contact resistance is approx 20 meg OHMS. When the switch is closed the resistance is a maximum of 20 k OHMS. The control interprets the reduction in resistance as switch actuation.

- The touch screen is held in place by double sided tape.
- Note that although there are 64 individual switches with a size of .4411 x .611, the control can display a larger pushbutton by combining several switches together. Pressing anywhere within the larger pushbutton activates one of the switches, causing the control to respond.

4.7 DISPLAY MODULE

This is a vacuum fluorescent device operating on both 5 VDC and 90 VDC. It has two cable connectors, C1 which carries the display signals, and C2 which connects the power supply.

- There are no serviceable components on the display module. A fuse is present, however it is soldered in and failure of this fuse indicates a catastrophic internal failure of the module.
- The Display Module is supplied power from the Interface Board. An overload condition of the Display Module (e.g., short) can cause Interface Board failure.

4.8 DISPLAY INTERFACE BOARD

See Figure 4-9.

This device handles the communication link between the Main Control and the Display Module and the Printer. This component includes a transformer which supplies the necessary power to the Display Module.

Serviceable components on the Display Interface Board include:

1. U17 relay - controls the paper take up motor.
2. SW1 - voltage selector
3. S1 dip switch
4. JP1, JP2, JP3 jumpers

- Refer to the Century Control reference section for proper setting of SW1, S1, and jumper pins.
- Note that the interface board contains two fuses, F1 and F2. These fuses are on the output side of the board mounted transformer. The transformer supplies power to the Display Module. Should a fault occur in the Display Module, one or both of these fuses could fail. These fuses are soldered-in and are not field replaceable. If either fuse has failed, the board itself must be replaced.
- There is an LED for the 90 Volt output of the transformer. This LED is downstream of the fuse. Lack of a lit LED may indicate fuse failure. Check operation of the Display Module prior to replacing an Interface Board because of loss of 90 volt LED.

4.9 PRINTER BOARD ASSEMBLY

See figure 4-10.

This is found only on the OE control. This board handles the interface between the control and the impact printer.

Serviceable components on this board include:

1. U8 relay - not used in the Century control application, this provides 120 VAC output to J43 pin.
2. SW1 dip switch
3. W1 and W2 jumpers

- Refer to the Century Control reference section for proper setting of SW1 and jumpers.
- There is also a limit switch, SW2, on the board. This is used for paper take up control on other applications of this board, however it is not used in the Century control application. The Century control automatically turns on the paper take up motor to take up one line of printer tape for every line the control prints.

4.10 SPEAKER

Both OE and NOE displays have a speaker. Volume is adjustable in Service Mode.

4.11 PRINTER

On OE only, printer is an impact type with replaceable ribbon cartridge. Printer itself is replaceable.

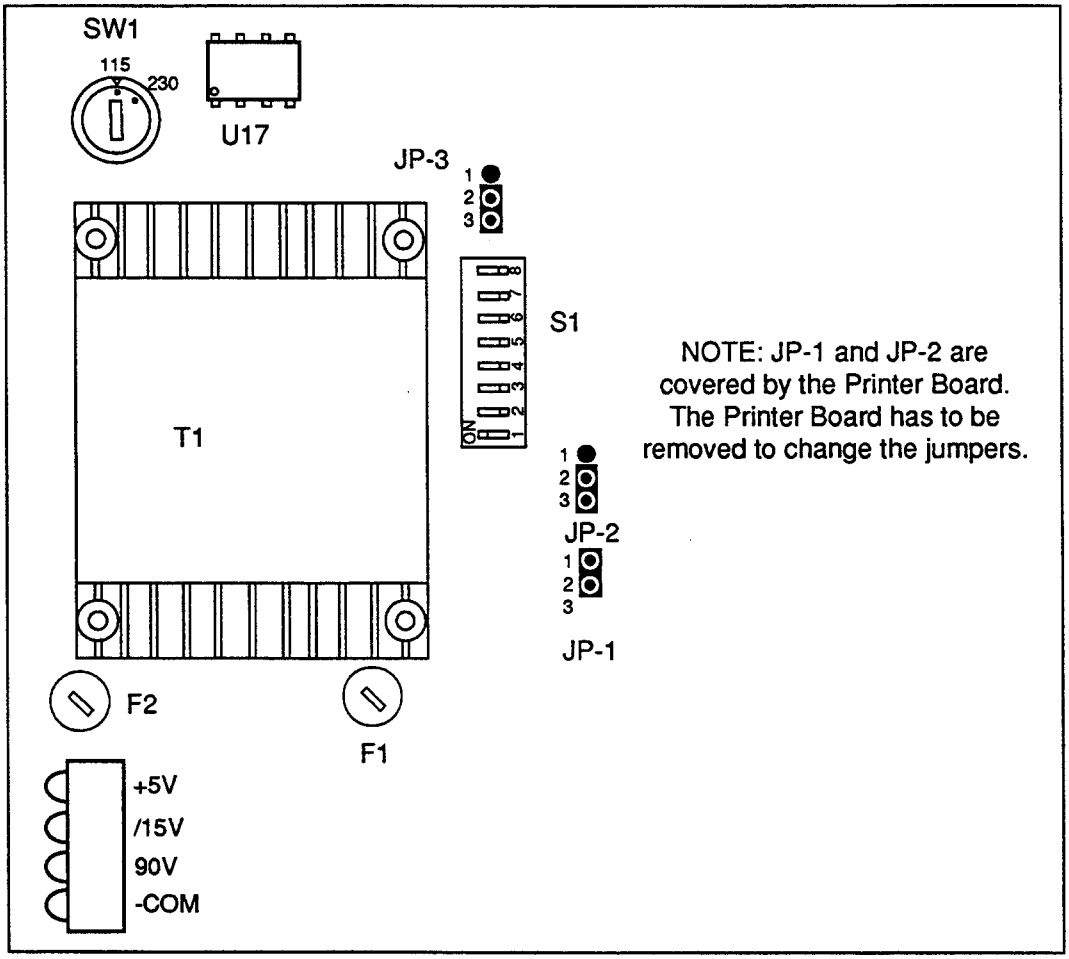


Figure 4-9. Interface Board

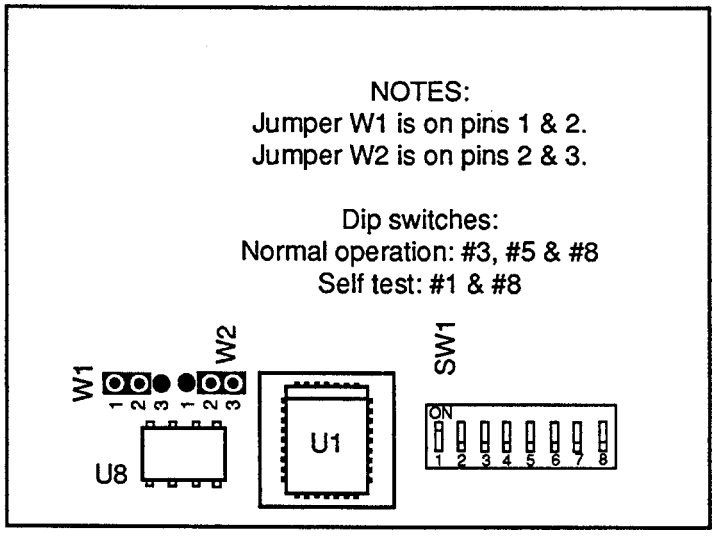


Figure 4-10. Printer Board

4.12 PAPER TAKE UP MECHANISM

120 VAC motor is controlled by a replaceable relay on the Interface Board. Motor operates by taking up one line of printer tape for every line printed.

- Paper take up spool is held in place by a magnetic holder.

4.13 ANALOG DEVICES

4.13.1 RTD

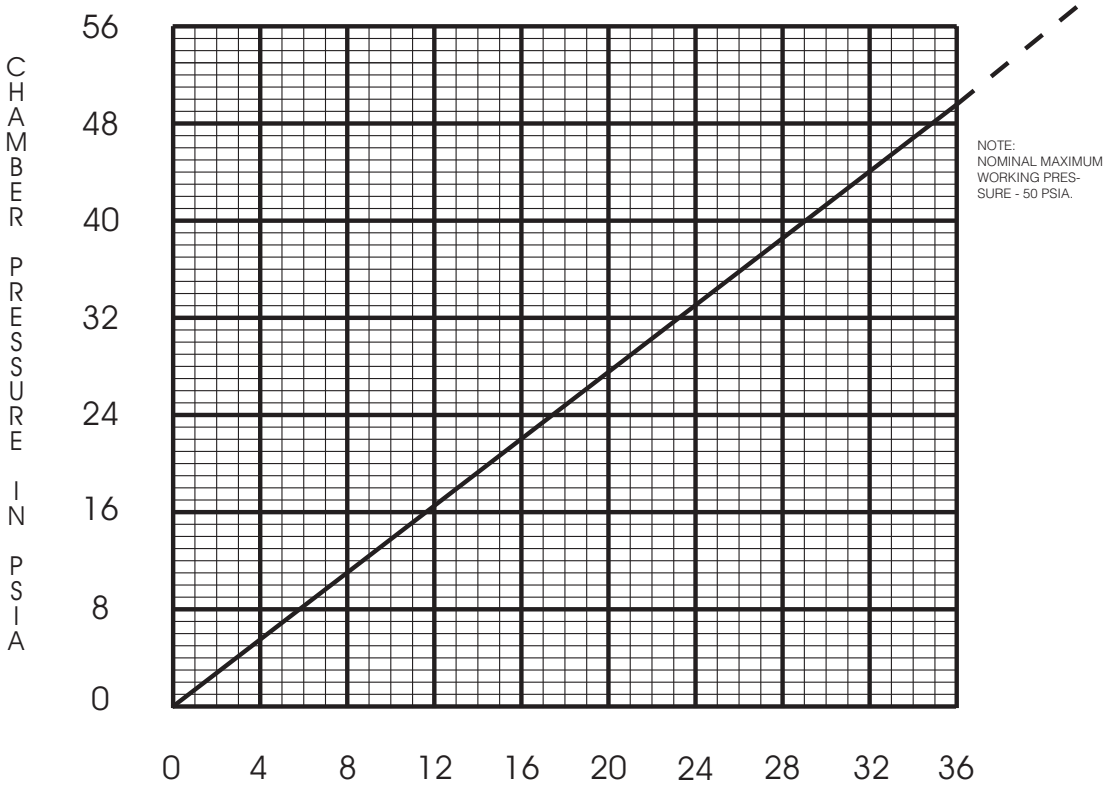
Three RTDs are used, one each in the chamber drain, jacket, and waste line.

- Resistance can be measured by disconnecting the RTD plug and measuring with a Volt Ohm Meter (VOM) between the two RTD leads (pins 2 and 3 of the plug). See test procedure later in this section.

4.13.2 Pressure Transducer

One is used in the Century sterilizer. Early units used a 12V DC transducer and current units utilize a 10V DC transducer. Either version transducer can be utilized on early or current units.

- Transducer output can be measured with a VOM between the output leads. See test procedure later in this section.



MILLIVOLTS D.C. BETWEEN THE GREEN AND WHITE WIRES
STRAIN GAUGE PRESSURE TRANSDUCER RESPONSE

Pressure Transducer: The pressure transducer exhibits a resistance change in response to a pressure change, and is termed a strain gauge type. The illustration below shows the internal configuration and output voltage.

This is an application of the Wheatstone Bridge configuration. The four resistors will vary in resistance in response to a pressure change, and are chosen so that at 0 PSIA, the output voltage is zero. At 50 PSIA the output voltage is 36 millivolts.

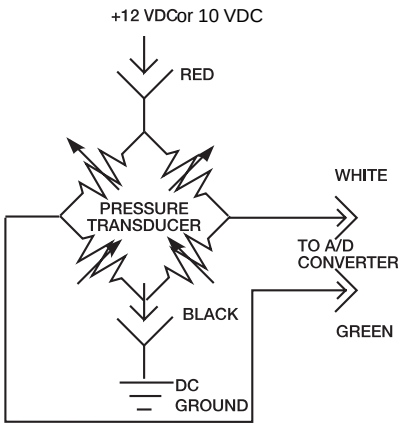
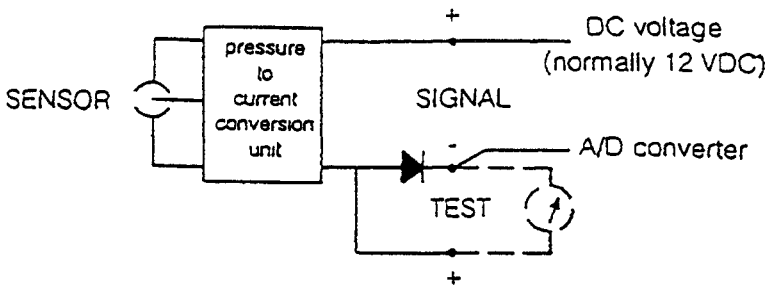


Figure 4-11. Pressure Transducer SENSOTEC (50 PSIA) For Chamber Pressure

Pressure Transducer: The pressure transducer exhibits an electrical current change in response to a pressure change. The pressure/current relationship is linear based on a current range of 4-20 mA and a pressure range of 0-50 psia. See graph below.

The accuracy of the pressure input circuit is ± 0.03 psi over the range of 0 to 65 psi.

Pressure Transducer (typical)



NOTE: The current signal may be measured at the TEST terminals

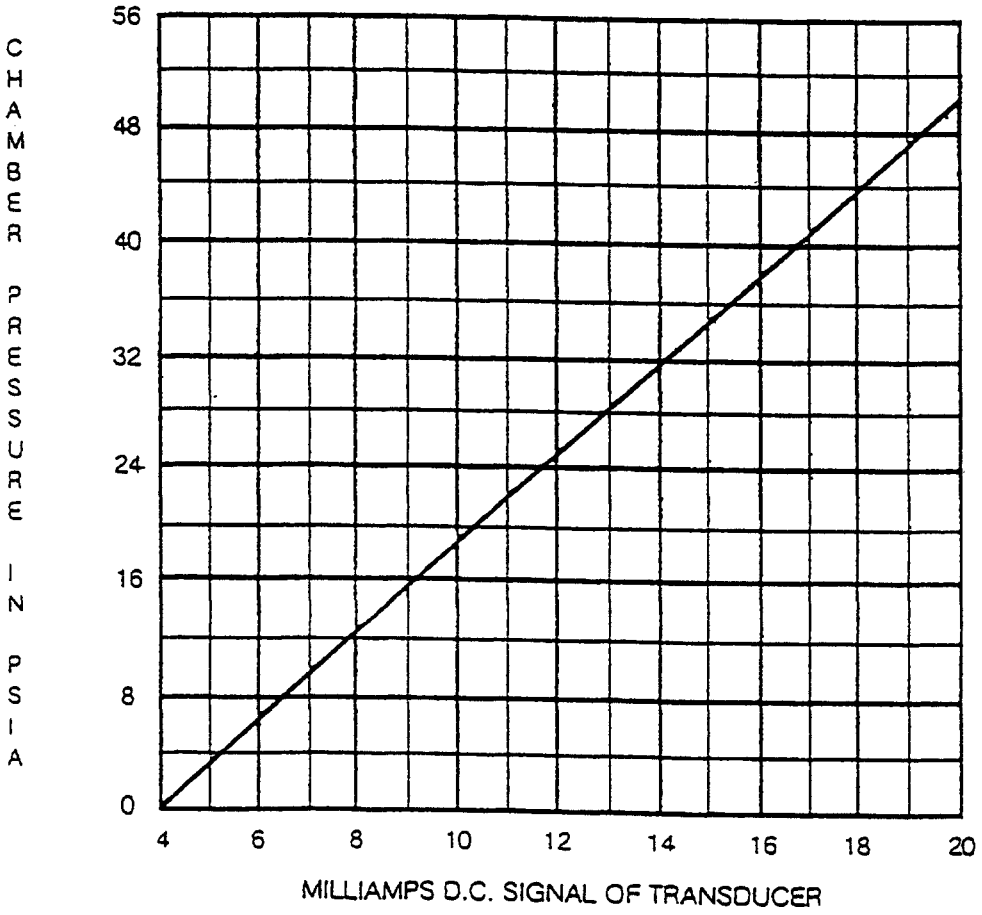


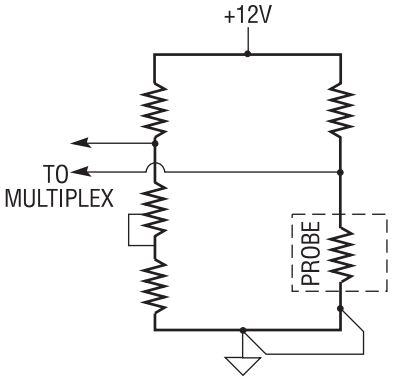
Figure 4-12. Rosemount Transducer – Used on Special Scientific Strilizers

RTD Temperature Probe

Temperature is sensed by a resistance temperature probe. The probe has a resistance of 100 ohms at 32°F, and increases approximately 0.21 ohms for every °F temperature increase. By connecting the probe as part of a voltage divider circuit, an output voltage exactly related to temperature, is obtained.

0.353 mV/DEGREE FAHRENHEIT

Fahrenheit	Celsius	Resistance	Millivolts
32	0	100	182.48
70	21.111	108.23	196.33
95	35	113.65	205.34
100	37.778	114.73	207.14
115	46.111	117.98	212.51
125	51.667	120.15	216.07
130	54.444	121.23	217.35
145	62.778	124.48	223.17
212	100	139	246.63
250	121.11	147.23	259.72
253	122.78	147.88	260.75
270	132.22	151.57	266.55
273	133.89	152.22	267.57
285	140.56	154.82	271.64
287	141.67	155.25	272.32
290	143.33	155.90	273.34
295	146.11	156.98	275.03

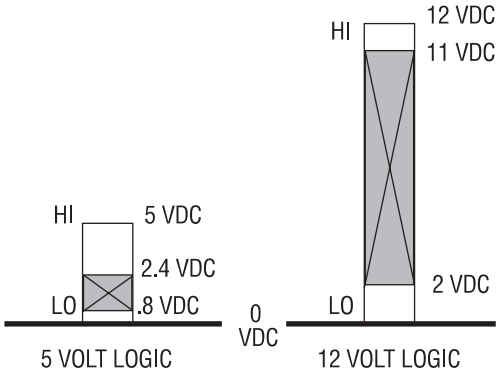


RTD TEMPERATURE PROBE LOGIC

12 Volt and 5 Volt Logic

The Century uses an additional “logic” system similar to that on selected Stage 3 controls. The control utilizes the standard 5 VDC logic.

In addition to this, the machine uses a 12 VDC logic system that is optically coupled to the control. The logic levels are as follows:



Section 5: Service Mode

The Eagle® Century™/Millennium Series sterilizer is provided with a Service mode to direct all service-related adjustments through the control system. From this mode, a qualified service technician may:

- calibrate temperature probes and chamber pressure
- troubleshoot piping and electrical components
- change cycle values and sterilizer operating parameters

See Figure 5-1 for Service Mode program tree.

IMPORTANT: Service mode should be accessed and used only by qualified service personnel.

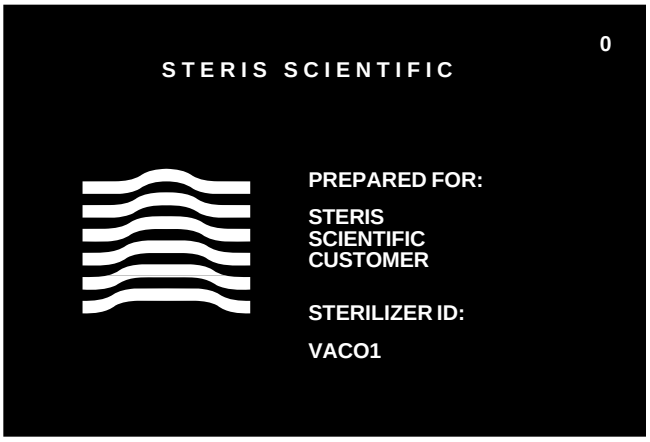
This section outlines each of the service functions which can be performed from the service mode. Service mode programming across scientific and Health Care sterilizers is virtually identical; differing only in the method of access. Both methods of access are shown on the following pages. Configuration screens differ between the two types of units, due to scientific options not available to Health Care units.

5.1 ACCESS SERVICE MODE

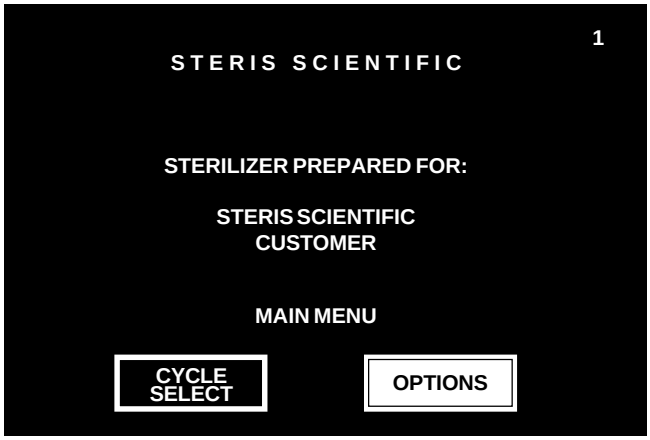
5.1.1 Scientific Sterilizers

To access the Service Mode main menu (screen #331),

1. Press EAGLE or STERIS wave on screen #0.

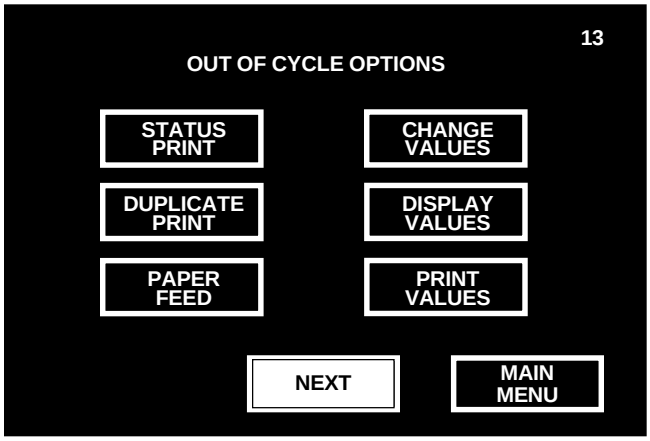


2. Press OPTIONS on screen #1.



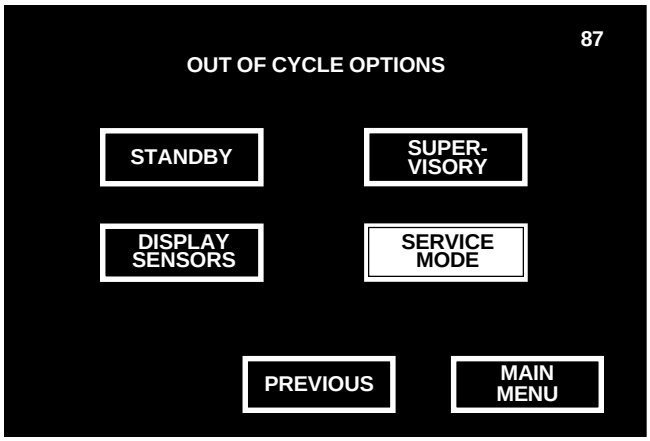
Pressing CYCLE SELECT advances display to the first Cycle Select menu (screen #2).

3. Press NEXT on screen #13.



Pressing MAIN MENU returns display to screen #1.

4. Press SERVICE MODE on screen #87.



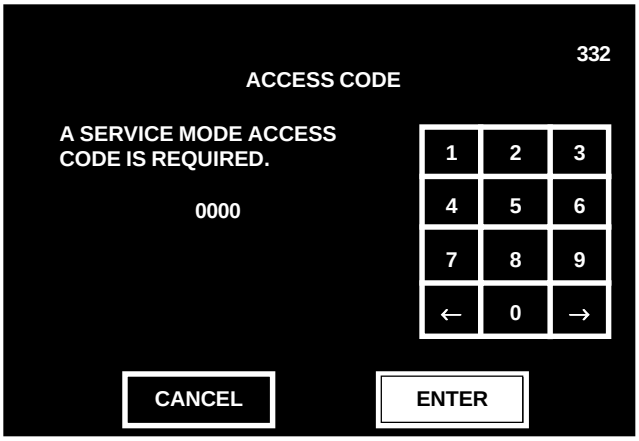
Pressing PREVIOUS returns display to screen #13.

Pressing MAIN MENU returns display to screen #1.

5. Enter the four-digit service access code using the numeric keypad. The service access code is the year currently programmed in the control (e.g., 1994). Service access code automatically updates to correspond with the programmed date; service access code cannot be customized.

   Once code is correctly entered, press ENTER.

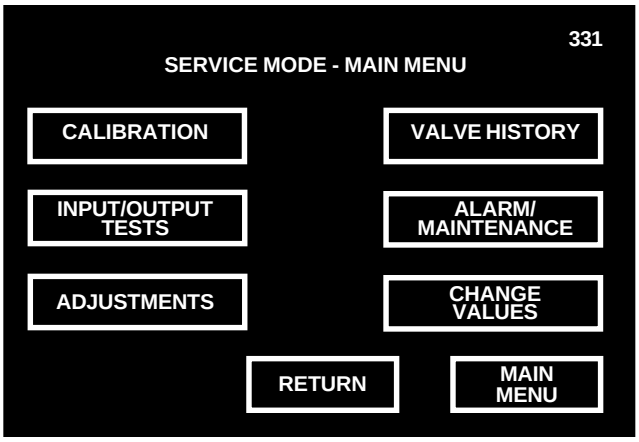
NOTE: *If incorrect code is entered, pressing ENTER denies access to the Service mode and returns display to screen #1.*



Pressing CANCEL returns display to screen #1.

6. Display advances to the Service mode main menu (screen #331) and printer records the revision level, date and time when Service mode was programmed and the current date, time, run time and cycle count when Service mode was accessed (see Figure 1).

   Screen #331 lists all the functions that can be performed from the Service mode. To perform a specific function, refer to the description, included in this section, titled the same as the button on screen #331.



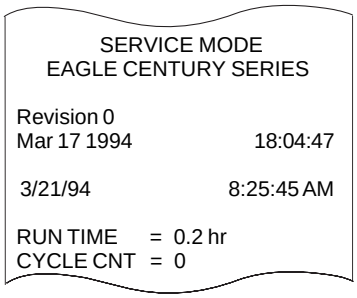


Figure 5-2. Sample Printout

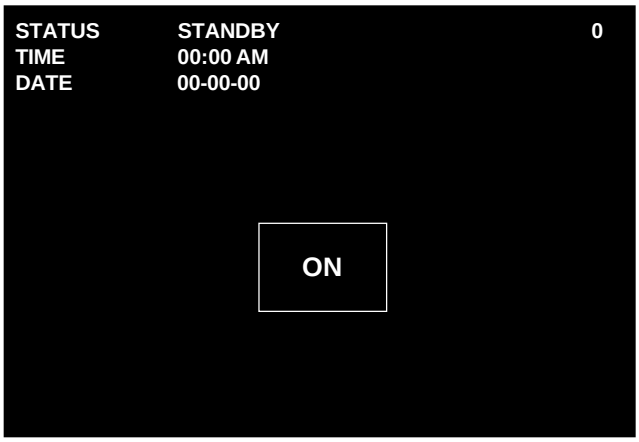
Pressing MAIN MENU returns display to screen #1.

7. To exit the Service mode, press RETURN on screen #331. Control saves all adjustments made and display returns to screen #87.

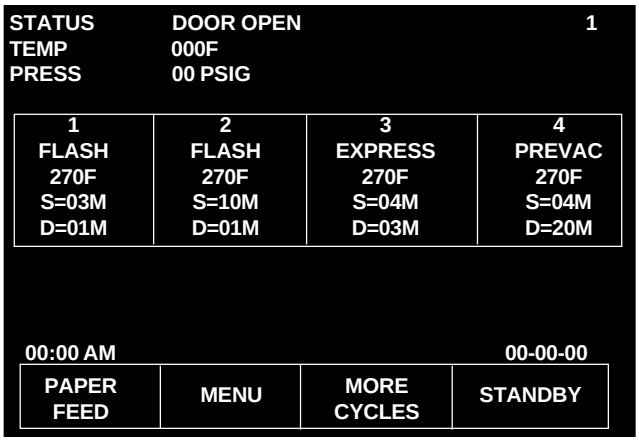
5.2 ACCESS SERVICE MODE

5.2.1 Health Care Sterilizers

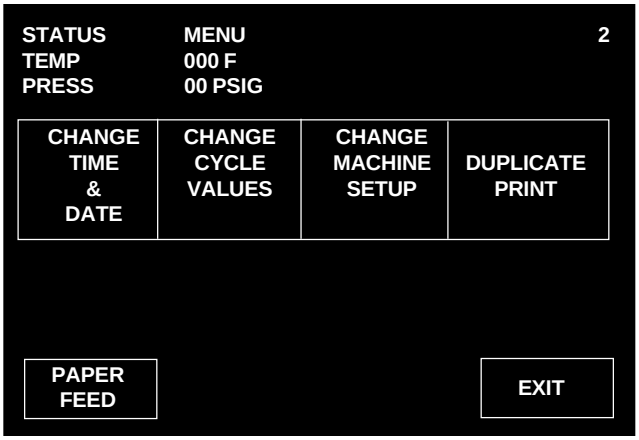
To access the Service mode main menu (screen #331),



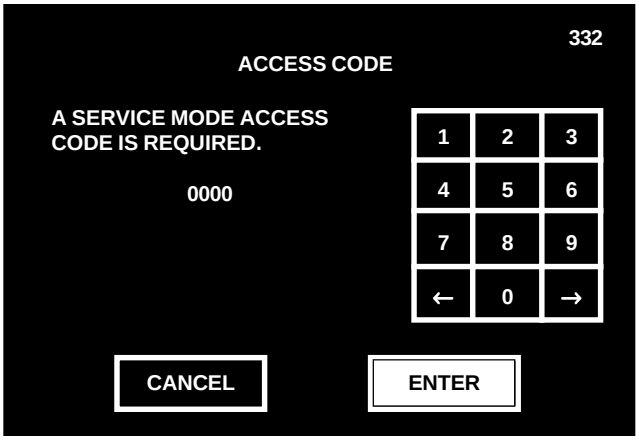
1. Press ON button on screen #0.
2. Press MENU on screen #1.



3. Press the "2" in the upper right hand corner of screen #2.

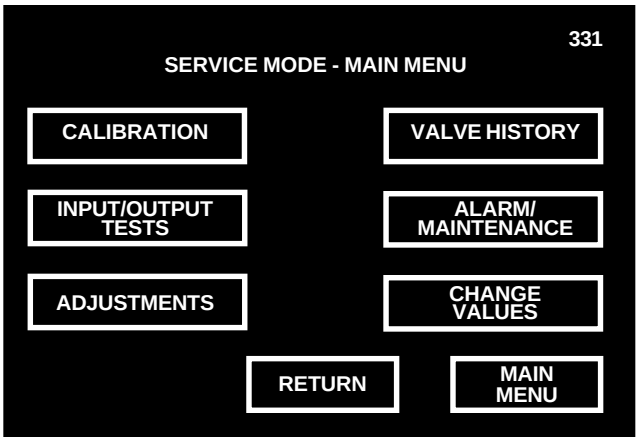


4. Enter the four-digit service access code using the numeric keypad. The service access code is the year currently programmed in the control (e.g., 1994). Service access code automatically updates to correspond with the programmed date; service access code cannot be customized.



Once code is correctly entered, press ENTER.

NOTE: *If incorrect code is entered, pressing ENTER denies access to the Service mode and returns display to screen #1.*



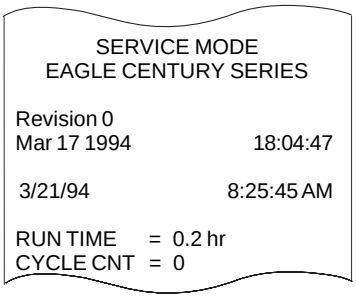


Figure 5-3. Sample Printout

5. Display advances to the Service mode main menu (screen #331) and printer records the revision level, date and time when Service mode was programmed and the current date, time, run time and cycle count when Service mode was accessed (see Figure 2).

   Screen #331 lists all the functions that can be performed from the Service mode. To perform a specific function, refer to the description, included in this section, titled the same as the button on screen #331.

6. To exit the Service mode, press RETURN on screen #331. Control saves all adjustments made and display returns to screen #2.

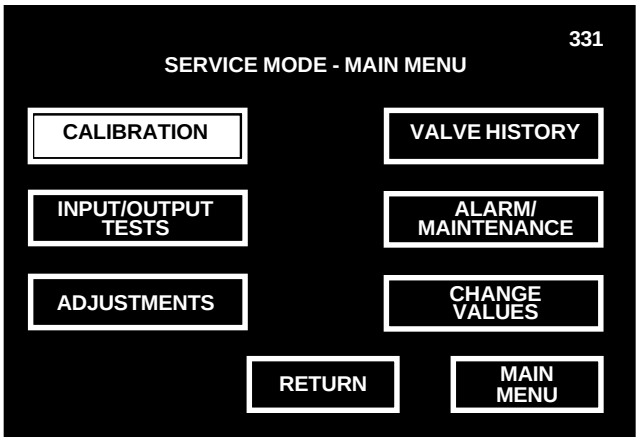
5.3 CALIBRATION

Calibration option allows the service technician to:

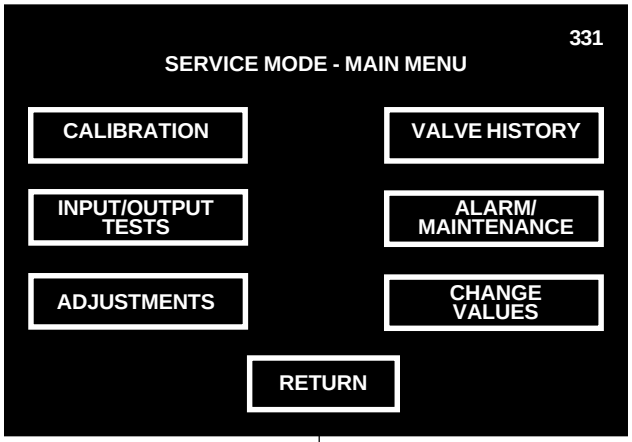
- review different methods of calibration
- calibrate temperature and pressure probes
- change temperature and pressure units
- display current temperature readings for verification
- display record of the last five times the calibration routine was performed.

1. Press CALIBRATION on screen #331.

Pressing MAIN MENU returns display to screen #1.



Eagle® Century™ Series Sterilizer
Service Mode Program Tree



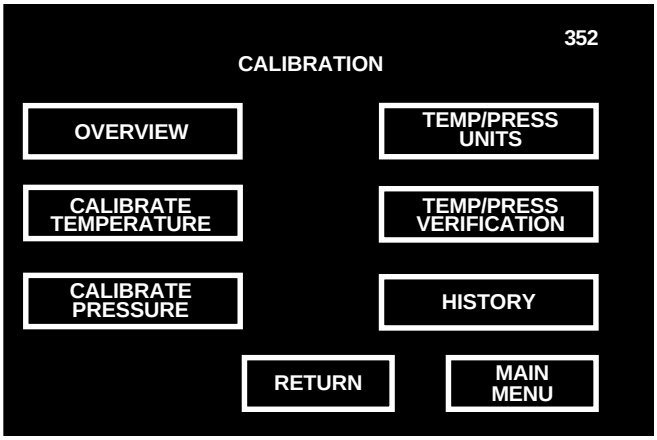
NOTE: *Case numbers for corresponding paragraphs within this section of the manual are shown below on the chart.*

- CALIBRATION 5.3
  - Calibration Overview 5.3.1
    - Definitions of Calibration Methods
  - Calibrate Temperature 5.3.2
    - Steam 5.3.2.1
    - Oil Bath 5.3.2.2
    - Load Values
  - Calibrate Pressure 5.3.3
    - 5.3.2.3
    - Steam 5.3.3.1
    - External 5.3.3.2
  - Temp/Press Units 5.3.4
    - Load Values 5.3.3.3
    - °C or °F 5.3.4.2
    - psig/inHg,
  - Temp/Press Verification 5.3.5
    - psia or Bar 5.3.4.1
  - Calibration History 5.3.6
    - Displays Current Sensor Readings
    - Log of Past 5 Calibrations
- INPUT/OUTPUT TESTS 5.4
  - I/O Test
- ADJUSTMENTS 5.5
  - Safety Valve Test/ Regulator Setting 5.5.1
  - Door Sensor Adjustments 5.5.2
  - Door Pressure Setting 5.5.3
  - Leak Test 5.5.4
- VALVE HISTORY 5.6
  - Valve Service 5.6.1
  - View Valve Actuation History 5.6.2
  - View Valve Cycle Count History 5.6.3
- ALARM/ MAINTENANCE 5.7
  - Alarm List 5.7.1
  - Alarm Log 5.7.2
  - Show Screens 5.7.3
  - Pushbutton Test 5.7.4
  - Battery Saver 5.7.5
  - Configure Machine 5.7.6
    - Set Configuration (Gravity/Iso/Prevac)
    - Load Program
- CHANGE VALUES 5.8
  - Cycle Count & Run Time
  - Values
    - Cycles
    - Time/Date
    - Too Long In Phase
    - Setup

Figure 5-1. Service Mode Program Tree

2. Screen #352 lists the available calibration functions. To perform a specific function, refer to the following description titled the same as the button on screen #352.

Pressing MAIN MENU returns display to screen #xx.



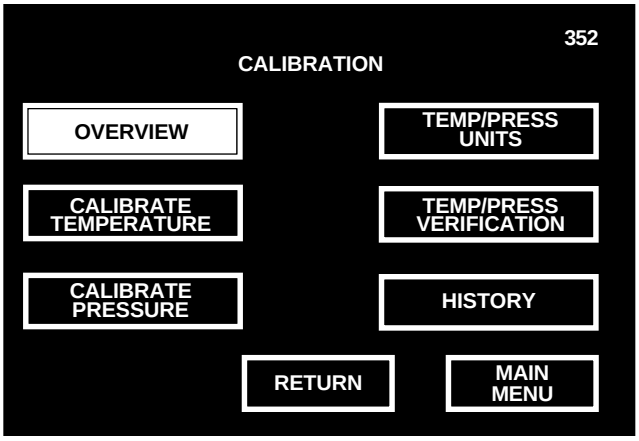
3. To exit the Calibration option, press RETURN on screen #352. Display returns to the Service mode main menu (screen #331).

5.3.1 Calibration Overview

This calibration function allows the service technician to view brief explanations of the pressure and temperature calibration methods.

1. Press CALIBRATION OVERVIEW on screen #352.

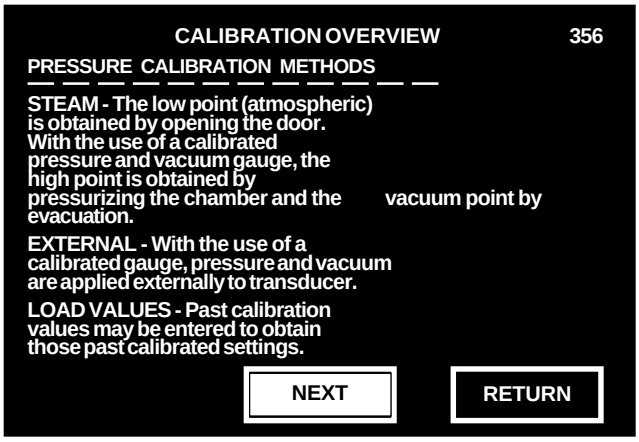
Pressing RETURN returns display to screen #331.



Pressing MAIN MENU returns display to screen #1.

2. Screen #356 briefly explains the three different methods of calibrating the pressure probes.

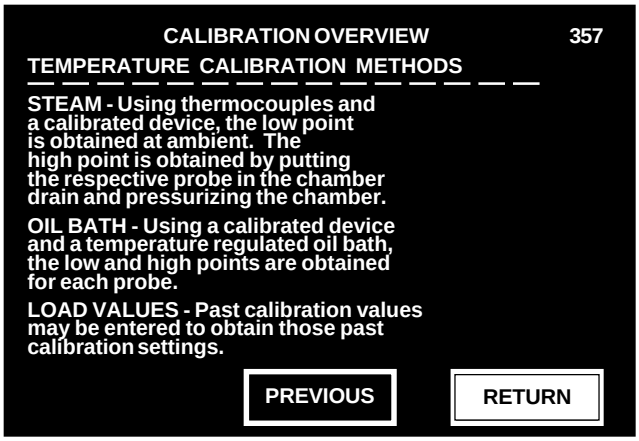
   Press NEXT to view the temperature calibration methods.


CALIBRATION OVERVIEW
356
PRESSURE CALIBRATION METHODS
STEAM - The low point (atmospheric) is obtained by opening the door. With the use of a calibrated pressure and vacuum gauge, the high point is obtained by pressurizing the chamber and the vacuum point by evacuation.
EXTERNAL - With the use of a calibrated gauge, pressure and vacuum are applied externally to transducer.
LOAD VALUES - Past calibration values may be entered to obtain those past calibrated settings.
NEXT
RETURN

Pressing RETURN returns display to screen #352.

3. Screen #357 briefly explains the three different methods of calibrating temperature.

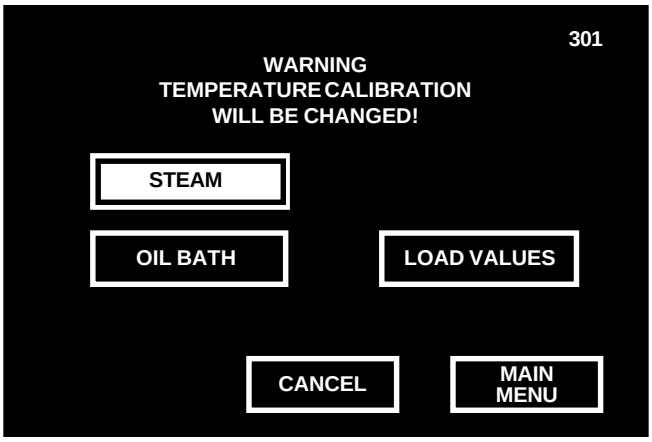
   After viewing calibration methods, press RETURN. Display returns to screen #352.


CALIBRATION OVERVIEW
357
TEMPERATURE CALIBRATION METHODS
STEAM - Using thermocouples and a calibrated device, the low point is obtained at ambient. The high point is obtained by putting the respective probe in the chamber drain and pressurizing the chamber.
OIL BATH - Using a calibrated device and a temperature regulated oil bath, the low and high points are obtained for each probe.
LOAD VALUES - Past calibration values may be entered to obtain those past calibration settings.
PREVIOUS
RETURN

Pressing PREVIOUS returns display to screen #356.

5.3.2 Calibrate Temperature

The temperature can be calibrated one of three ways, either using the sterilizer's own steam source, a calibrated oil bath (typically for factory setup or scientific accounts) or by loading in previously set calibration values. The third method should only be used after replacing control components such as the CPU board or the program chips on the CPU board.

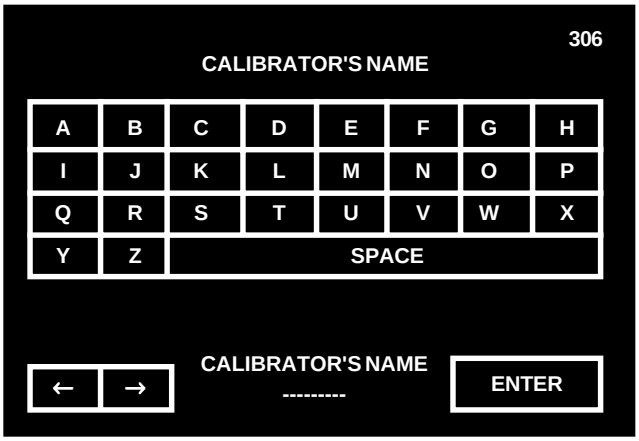


Select CALIBRATE TEMPERATURE at screen #352. the control advances to screen #301.

Select the calibration method at screen #301 by pressing the appropriate touch screen button.

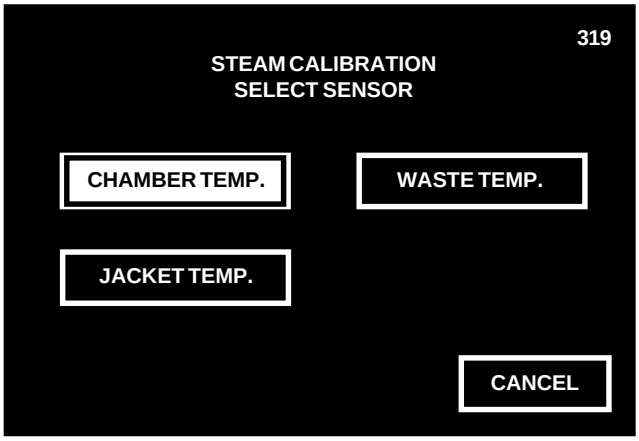
5.3.2.1 Steam Method of Calibration

Press STEAM METHOD. The control advances to screen #306 for the entry of the calibrator's name. Use the keypad to enter your name, then press ENTER.

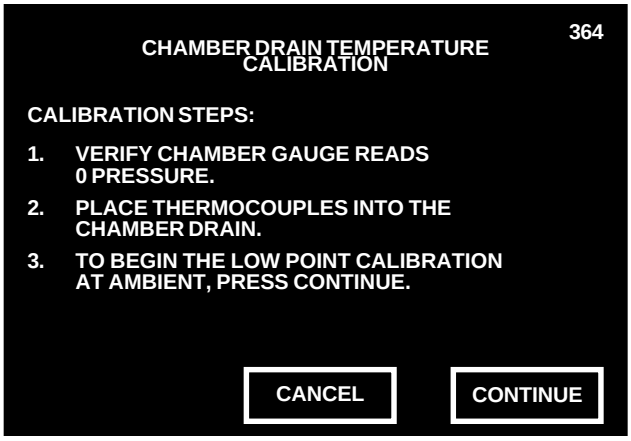


5.3.2.1a Calibrate Chamber Temperature

The control then advances to screen #319; this screen shows the three RTDs that can be calibrated. Only one RTD can be calibrated at any time, select the appropriate RTD.



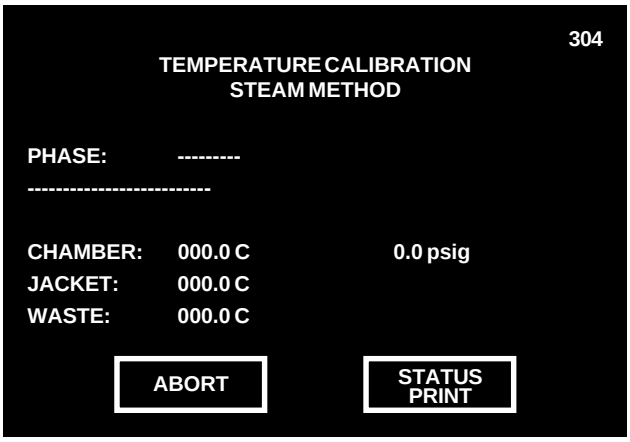
The control advances to screen #364. This screen displays extremely important steps to be taken before beginning any of the three RTD calibrations. Always read these instructions carefully and follow all instructions before continuing with the calibration.


364
CHAMBER DRAIN TEMPERATURE CALIBRATION
CALIBRATION STEPS:
1. VERIFY CHAMBER GAUGE READS 0 PRESSURE.
2. PLACE THERMOCOUPLES INTO THE CHAMBER DRAIN.
3. TO BEGIN THE LOW POINT CALIBRATION AT AMBIENT, PRESS CONTINUE.
CANCEL
CONTINUE

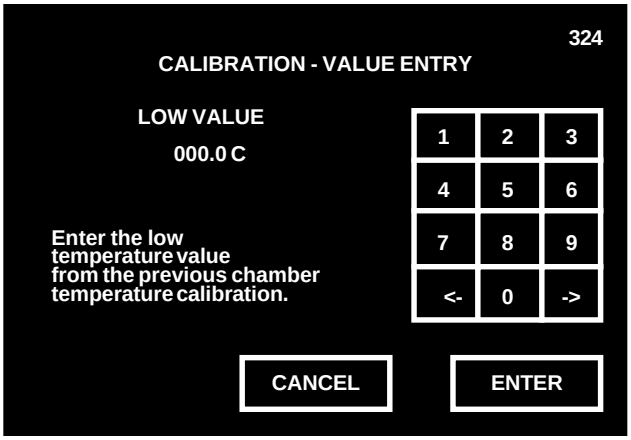
NOTE: *If the low temperature point is calibrated while chamber is at greater than 200° F, inaccuracies in overall calibration may occur.*

NOTE: *Upon entering the calibration procedure, the previous calibration settings are printed.*

1. Control advances to screen #304, and the calibration cycle begins. The sterilizer stabilizes the chamber RTD at the low temperature point.

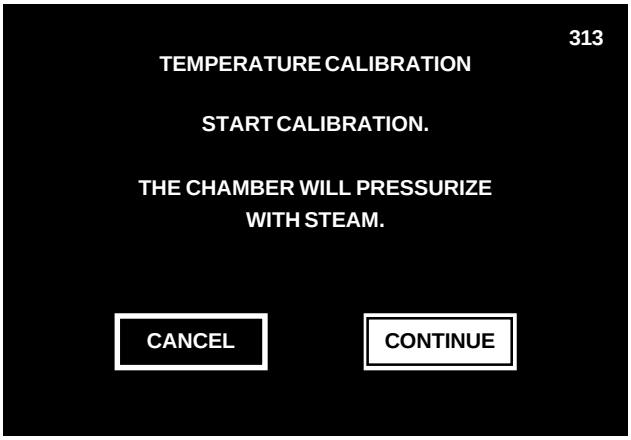


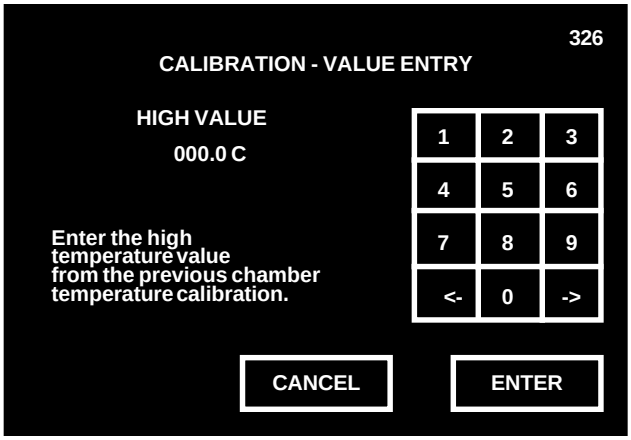
2. Once the low temperature point has been stabilized, the control advances to screen #324. Use the keypad to the right of the screen to enter the low temperature point from the calibrated device, then press ENTER.



3. Control advances to calibration cycle again, unless door(s) are open, then the control advances to screen #365, prompting the door to be closed. If the door is open, close it by pressing the foot pedal. Once the door is closed (or if it was already closed), the control advances to screen #313. Press CONTINUE to proceed with calibration.
   - Press CANCEL to return to main service mode menu.

4. Sterilizer continues with calibration cycle until chamber temperature stabilizes, then the control advances to screen #326 to allow entry of the high temperature point. Enter the high temperature value from the calibrated device, then press ENTER.





***NOTE**: The pressure reading during the high temperature segment of this calibration procedure must reach a minimum of 26 psig.*

5. The control advances to screen #304, and completes the calibration cycle. When complete the control advances to screen #366. Press CONTINUE to return to screen #319, where another RTD can be selected for calibration.

366
CALIBRATION COMPLETE
PLACE THE PROBE(S) BACK TO THEIR PROPER LOCATION.
MAKE SURE THE STERILIZER IS IN OPERATING CONDITION BEFORE CONTINUING.
CONTINUE

5.3.2.1b Calibrate Jacket Temperature

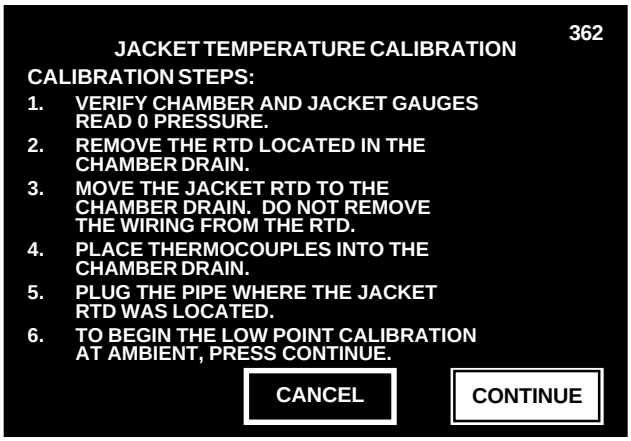
When selecting JACKET TEMP. it is necessary to remove the jacket RTD from its location and place it in the chamber drain, next to the location of the calibrated device's thermocouple. The pipe where the RTD was originally located must be plugged before beginning this procedure.

WARNING: BURN HAZARD! Do not remove the jacket RTD for jacket calibration until the chamber and jacket gauges read 0 psig.

NOTE: *If jacket temperature reads above 212° F the control automatically exhausts the jacket. If calibration values are incorrect at this point, and the actual jacket temperature is above 212° F, the jacket may fail to exhaust. Always verify chamber and jacket status with the gauges behind the operating end service access door.*

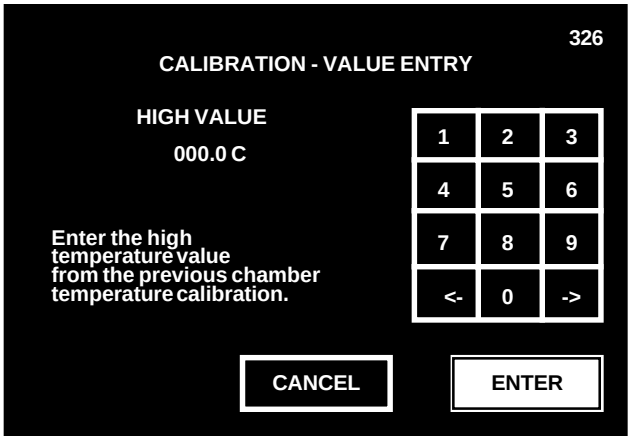
1. If the door is not closed, the control advances to screen #365 before allowing jacket calibration. Close the door(s), if necessary. Once closed, control advances to screen #313, press CONTINUE to begin the calibration procedure.

2. When the calibration procedure begins, the jacket is automatically exhausted of steam. Once exhaust is complete, and chamber temperature is stabilized, the control advances to screen #362. Read the steps on this screen carefully and follow all instructions before continuing. Once all instructions on screen #362 have been carried out, press CONTINUE to proceed with calibration.


362
JACKET TEMPERATURE CALIBRATION
CALIBRATION STEPS:
1. VERIFY CHAMBER AND JACKET GAUGES READ 0 PRESSURE.
2. REMOVE THE RTD LOCATED IN THE CHAMBER DRAIN.
3. MOVE THE JACKET RTD TO THE CHAMBER DRAIN. DO NOT REMOVE THE WIRING FROM THE RTD.
4. PLACE THERMOCOUPLES INTO THE CHAMBER DRAIN.
5. PLUG THE PIPE WHERE THE JACKET RTD WAS LOCATED.
6. TO BEGIN THE LOW POINT CALIBRATION AT AMBIENT, PRESS CONTINUE.
CANCEL
CONTINUE

*Press **CANCEL** to return to the main service mode menu.*

3. Control advances to calibration cycle, once the jacket RTD is stabilized, the control advances to screen #324 to enter the low temperature value from the calibrated indicator. Press ENTER to advance to the calibration cycle. Once the jacket RTD is stabilized at the peak charge point, the control advances to screen #326 for entry of the high temperature value. Enter high temperature value and press CONTINUE.



4. The control advances to screen #304, and completes the calibration cycle. When complete the control advances to screen #366.

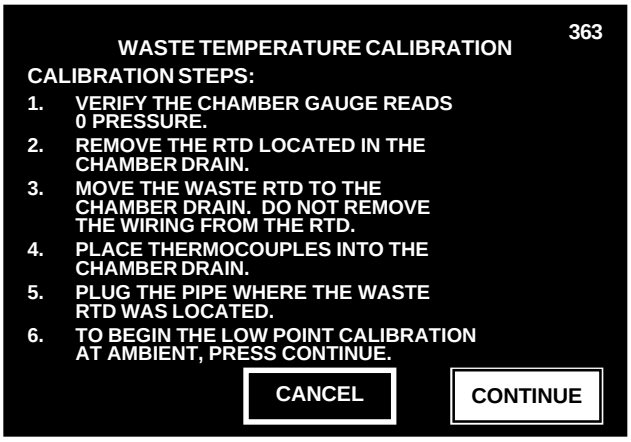
5. Press CONTINUE to return to screen #319, where another RTD can be selected for calibration.

NOTE: *Return the jacket and chamber RTDs to their proper locations.*

5.3.2.1c Calibrate Waste Temperature

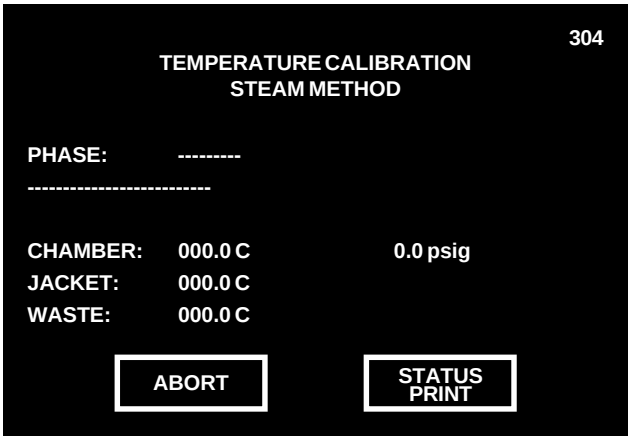
When selecting this procedure, note that it is necessary to remove the waste RTD from its location and place it in the chamber drain, next to the location of the calibrated indicator's thermocouple. The pipe where the RTD was originally located must be plugged before beginning this procedure.

1. When the calibration procedure begins, the jacket is automatically exhausted of steam. Once exhaust is complete, and chamber temperature is stabilized, the control advances to screen #363. Read the steps on this screen carefully and follow all instructions before continuing. Once all instructions on screen #363 have been carried out, press CONTINUE to proceed with waste temperature calibration.

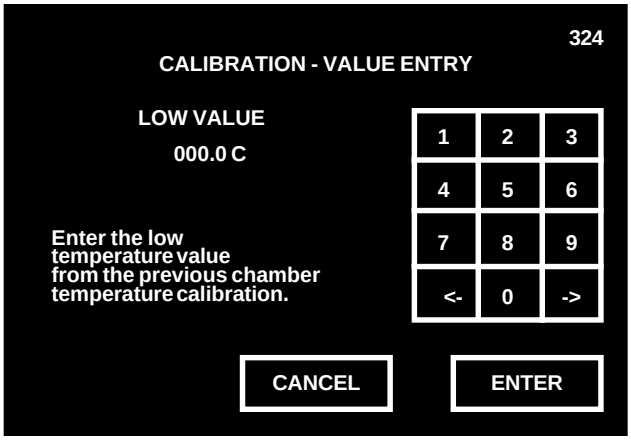

363
WASTE TEMPERATURE CALIBRATION
CALIBRATION STEPS:
1. VERIFY THE CHAMBER GAUGE READS 0 PRESSURE.
2. REMOVE THE RTD LOCATED IN THE CHAMBER DRAIN.
3. MOVE THE WASTE RTD TO THE CHAMBER DRAIN. DO NOT REMOVE THE WIRING FROM THE RTD.
4. PLACE THERMOCOUPLES INTO THE CHAMBER DRAIN.
5. PLUG THE PIPE WHERE THE WASTE RTD WAS LOCATED.
6. TO BEGIN THE LOW POINT CALIBRATION AT AMBIENT, PRESS CONTINUE.
CANCEL
CONTINUE

*Press **CANCEL** to return to the main service mode menu.*

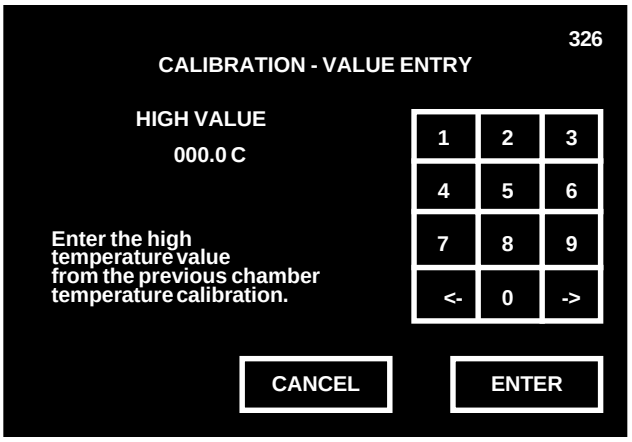
2. Control advances to calibration cycle, unless door(s) are open. If doors are open, control advances to screen #365, prompting the door to be closed. Close the door, if necessary. Once the door is closed (or if it was already closed), the control advances to calibration cycle (screen #304).



3. Control advances to calibration cycle, once the waste RTD is stabilized, the control advances to screen #324 to enter the low temperature value from the calibrated indicator. Press ENTER to advance to screen #304 and proceed through the calibration cycle.



4. Once the waste RTD is stabilized at the peak charge point, the control advances to screen #326 for entry of the high temperature value. Once this values is entered, press ENTER to proceed.



5. The control advances to screen #304, and completes the calibration cycle. When complete the control advances to screen #366. Press CONTINUE to return to main service mode menu.

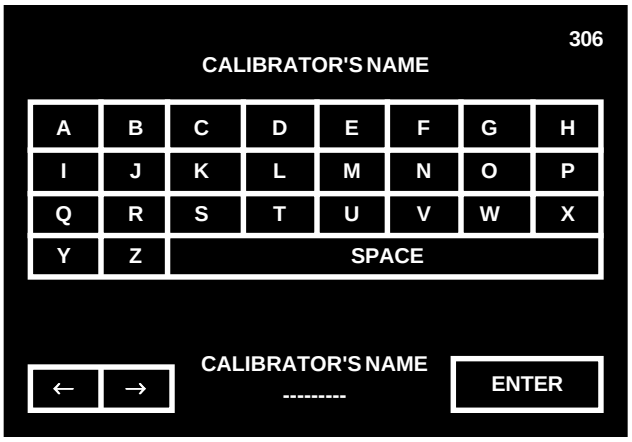
NOTE: *Return the waste and chamber RTDs to their proper locations.*

366
CALIBRATION COMPLETE
PLACE THE PROBE(S) BACK TO THEIR PROPER LOCATION.
MAKE SURE THE STERILIZER IS IN OPERATING CONDITION BEFORE CONTINUING.
CONTINUE

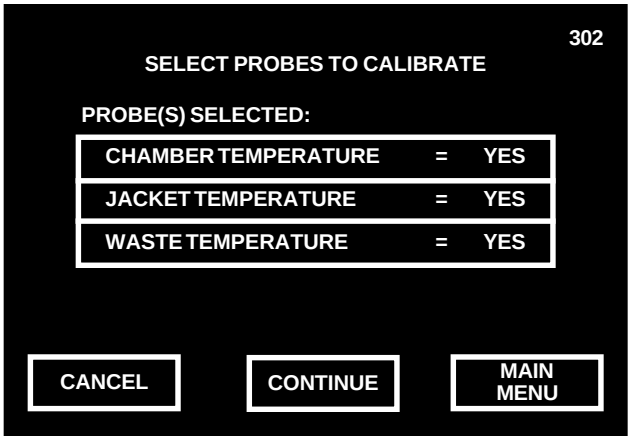
5.3.2.2 Oil Bath Method of Calibration

This method is used when calibrating RTDs in the factory, or when qualifying scientific units in the field. The oil bath method is not normally used for field calibration of Health Care sterilizers.

1. When any method of calibration is selected, the control advances to screen #306 for the entry of the calibrator's name. Use the keypad to enter your name, then press ENTER.

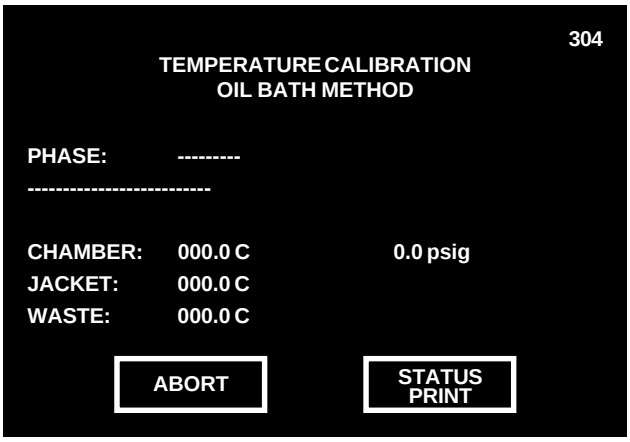


2. The control advances to screen #302. This screen shows the three RTDs that can be selected for calibration. One, two or all three RTDs can be selected for calibration at one time. Select the RTDs to be calibrated by pressing the appropriate touch screen pad on the display. Selected RTD names are shown followed by the word "YES"; when deselected the RTD name is follows by "NO". Press CONTINUE once RTDs are selected.



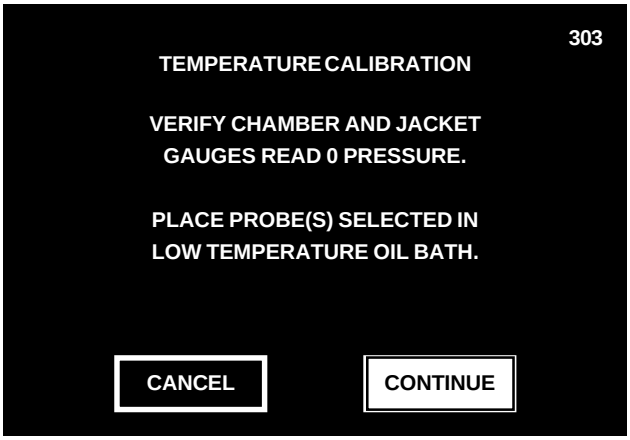
3. Control advances to calibration cycle, unless door(s) are open. If doors are open, control advances to screen #365, prompting the door to be closed. Close the door, if necessary.

4. Once the door is closed (or if it was already closed), the control advances to calibration cycle (screen #304).

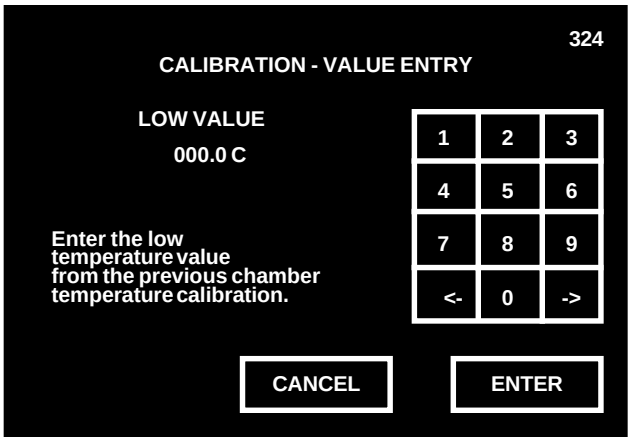


WARNING: BURN HAZARD! Do not remove the jacket RTD for jacket calibration until the chamber and jacket gauges read zero.

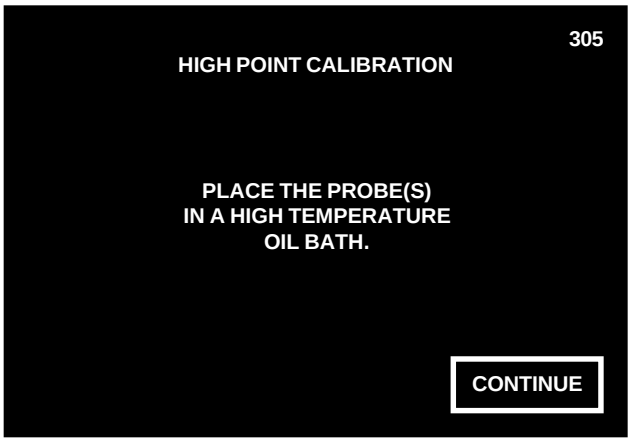
5. The sterilizer depressurizes the chamber jacket and piping and advances to screen #303. Verify that chamber and jacket are at zero pressure by observing gauges. Once pressure is at zero, remove the RTDs to be calibrated from the piping. Place selected RTDs in the low temperature oil bath and press CONTINUE.



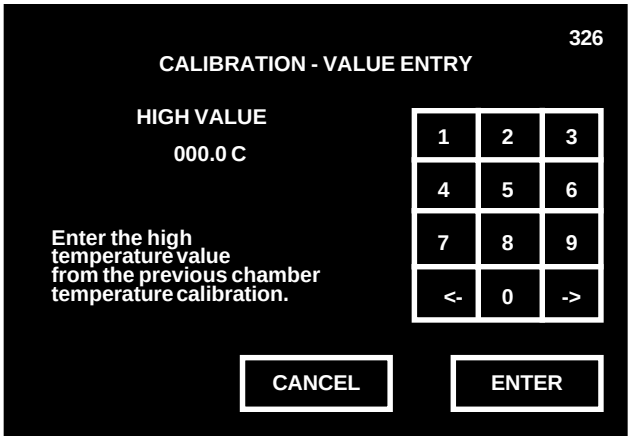
6. Sterilizer advances into calibration cycle and stabilizes RTDs at low temperature point. Once stabilized control advances to screen #324. Use the keypad to enter the low temperature value from the oil bath display, then press ENTER.



7. Control advances to screen #305. Remove RTDs from low temperature bath and place in high temperature bath, then press CONTINUE.



8. The control advances into the calibration cycle (screen #304), until the RTDs are stabilized at the high temperature point, then advances to screen #326. Enter the high temperature value from the oil bath display, and press ENTER.



9. At screen #366, you are instructed to return all RTDs to their original locations. Replace all RTDs, and press CONTINUE.

366
CALIBRATION COMPLETE
PLACE THE PROBE(S) BACK TO THEIR PROPER LOCATION.
MAKE SURE THE STERILIZER IS IN OPERATING CONDITION BEFORE CONTINUING.
CONTINUE

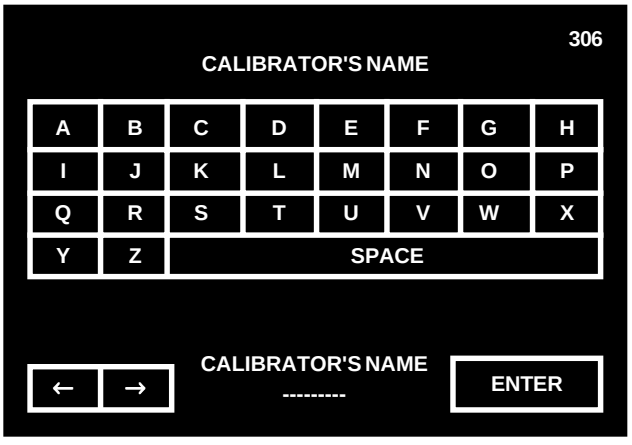
10. The display then returns to the main service mode menu.

5.3.2.3 Load Values Method of Temperature Calibration

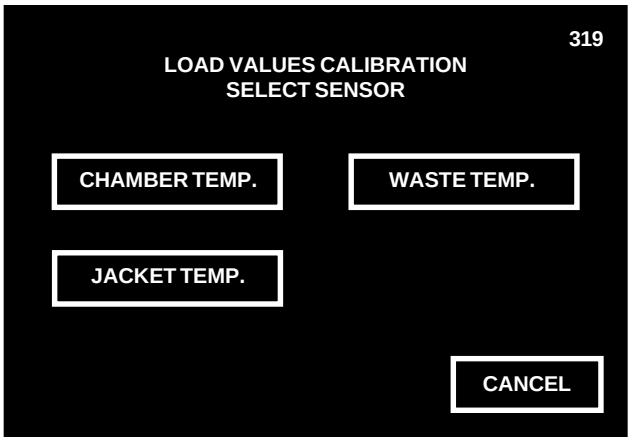
This calibration method is used to load previously set values into the control memory. This method only needs be used as a "correction" following replacement of the control CPU board or the program chips on the CPU board.

IMPORTANT: *All previously set calibration values are printed when entering this procedure.*

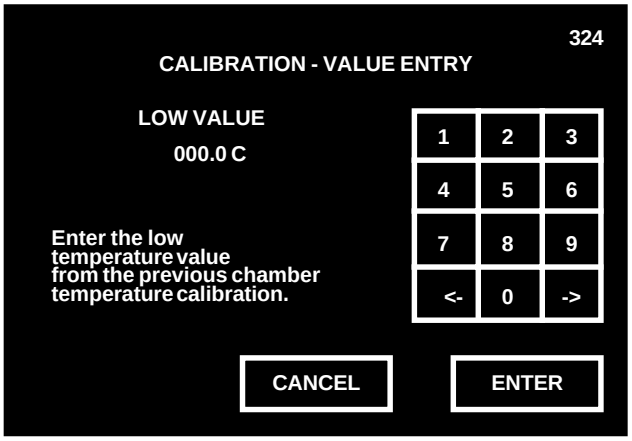
1. When any method of calibration is selected, the control advances to screen #306 for the entry of the calibrator's name. Use the keypad to enter your name, then press ENTER.



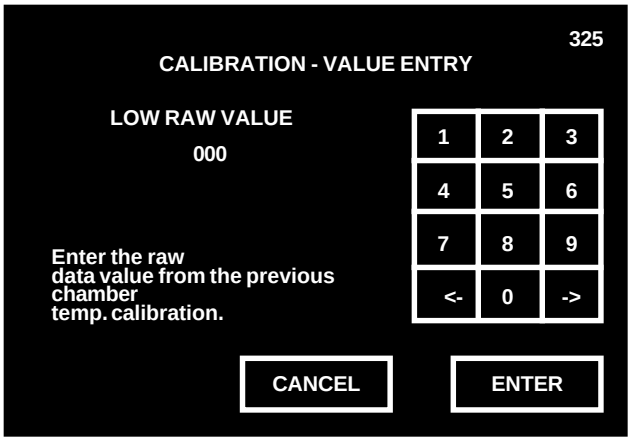
2. Control advances to screen #319, press the touch screen button for the appropriate RTD to be calibrated.



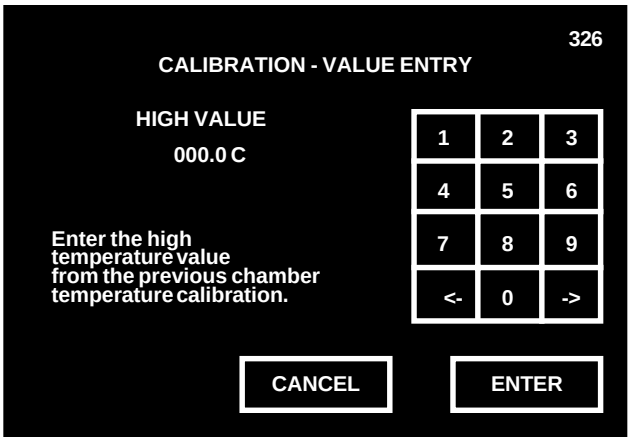
3. Control advances directly to screen #324 (i.e., no calibration cycle); enter the low temperature value and press ENTER.



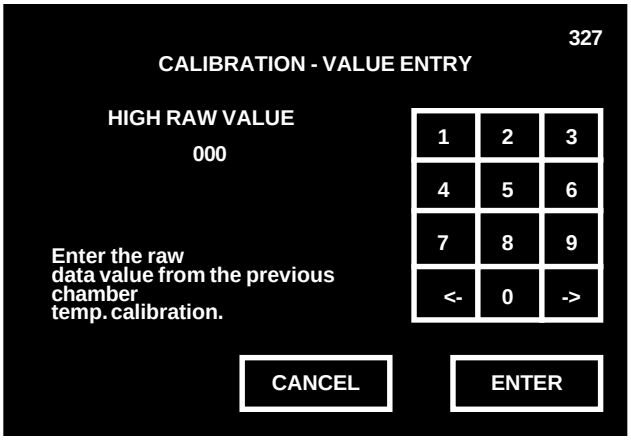
4. The control then advances directly to screen #325 for raw data entry. Raw data is a hexadecimal value; enter this value from printout and press ENTER.



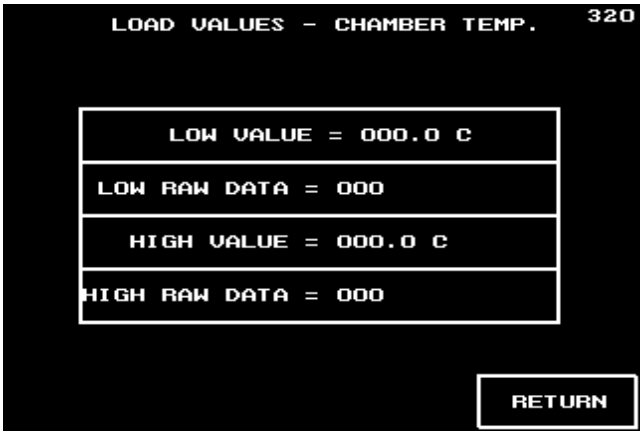
5. Following entry of the low value raw data, the control advances to screen #326 for entry of the high temperature value. Enter the value from the printout and press ENTER.



6. Control advances directly to screen # 327 of entry of high temperature raw data. Raw data is a hexadecimal value; enter this value from the printout and press ENTER.



7. The control advances to screen #320. Compare the displayed values with those on the printout. Verify that they match. If the values do not match the printout, press the value that does not match and enter the value again. If the values match the printout, press RETURN to advance to screen #319.

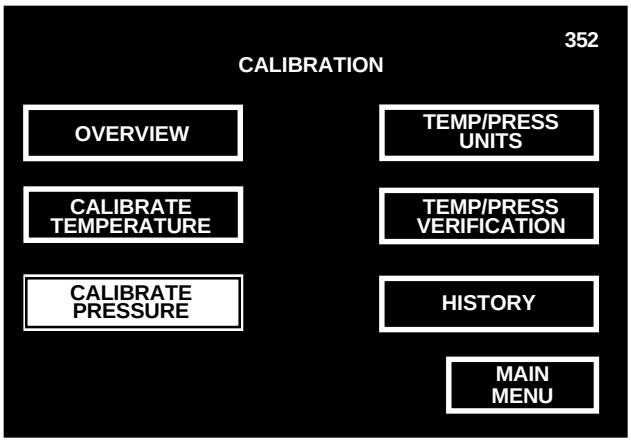


5.3.3 Pressure Calibration

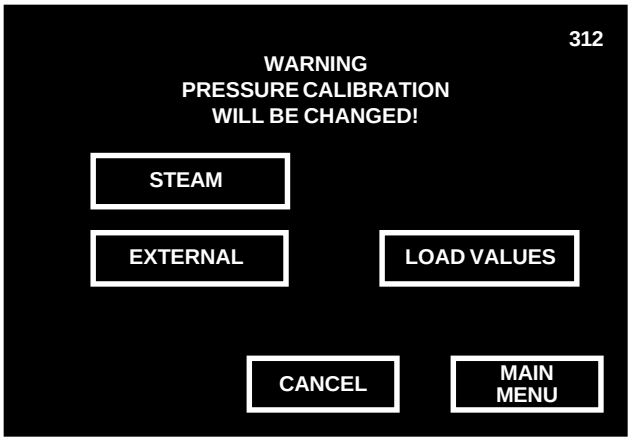
Pressure calibration can be accomplished either using the sterilizer's own steam source, using an external vacuum / pressure device or by loading in previously set values. Field calibration is typically accomplished using the steam method. The external method is used for scientific accounts. Loading previously set values is only used when replacing control components, such as the CPU control board or the program chips on the CPU board.

This procedure requires the use of a calibrated device (e.g., compound gauge or Heise gauge). Either device must be connected to the fitting adjacent to the pressure transducer. Calibration values entered into the control must be observed on the calibrated device.

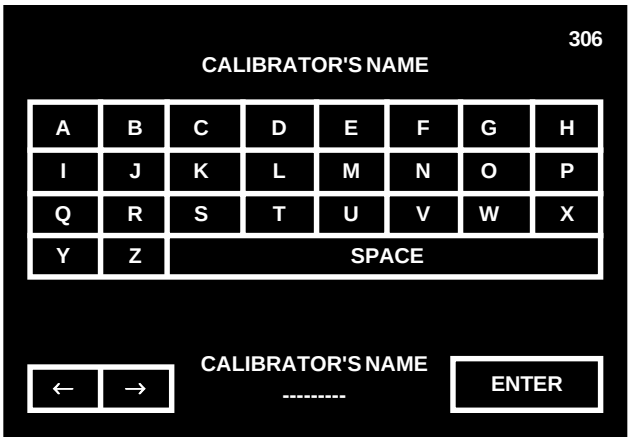
1. At screen #352, press "Calibrate Pressure".



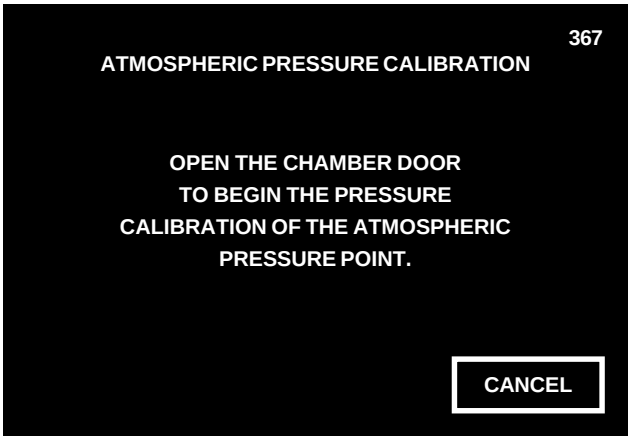
2. The control advances to screen #312. At this screen, select "Steam", "External" or "Load Values" method of calibration.



3. When any method of calibration is selected, the control advances to screen #306 for the entry of the calibrator's name. Use the keypad to enter your name, then press ENTER.

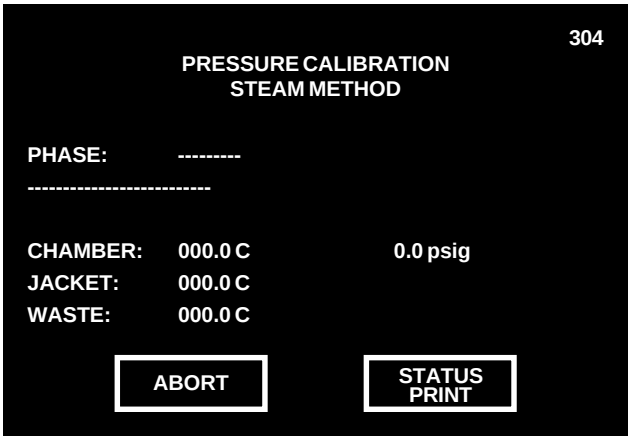


4. The chamber door must be open to initiate the pressure calibration procedure. This establishes a low pressure reference point. If the door is not open, screen #367 appears on the display.



5.3.3.1 Steam Method of Pressure Calibration

1. Open the door (if it is not already open), the control automatically advances to the calibration cycle (screen #304).

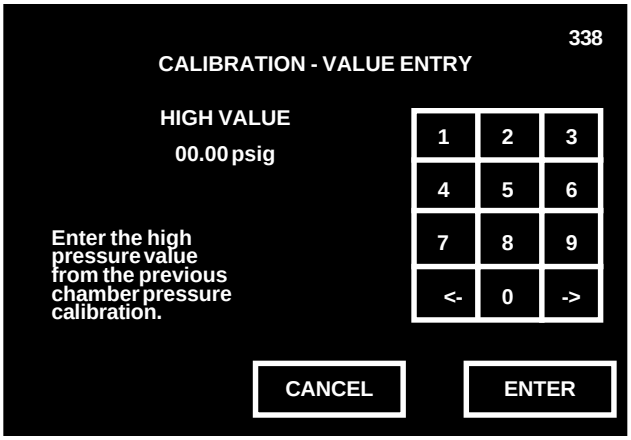


2. Once the atmospheric reference point has been established, the control advances to screen #365.

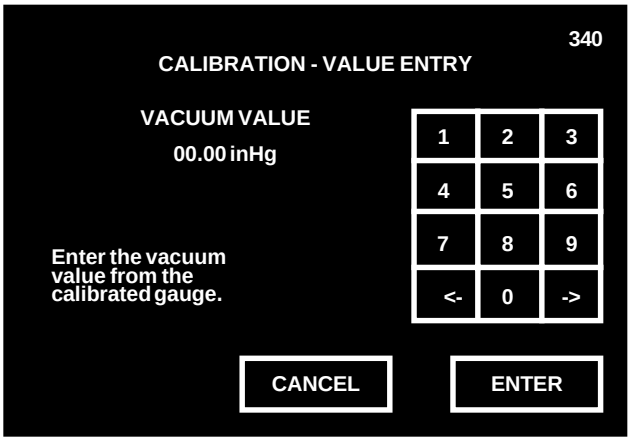
3. Close the door, the control advances to screen #313. Press CONTINUE and the control advances to the calibration cycle (screen #304).

4. The control advances to screen #304 while the chamber charges with steam to achieve a peak pressure point. The chamber must reach a minimum of 26 psig before the pressure transducer becomes stabilized.

5. Once chamber pressure is stabilized, the control advances to screen #338. Enter the pressure value shown on the calibrated gauge (compound or Heise) and press ENTER.



6. The sterilizer then advances to screen #304 while the chamber evacuates to a vacuum point of at least 20 inHg. Once vacuum is achieved, the control advances to screen #340. Enter the vacuum point from the calibrated gauge (compound or Heise) and press ENTER.

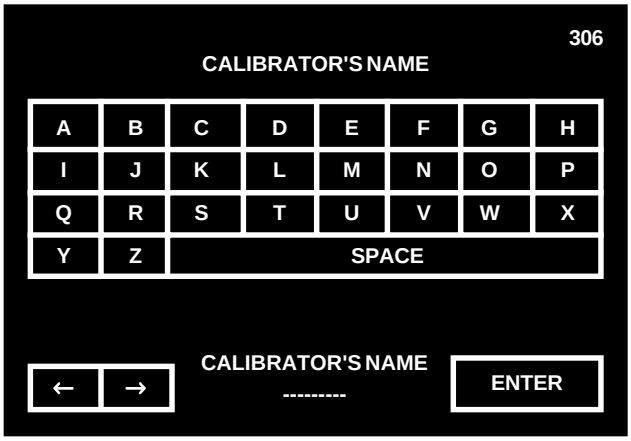


7. The control advances to screen #304, and completes the calibration cycle. When complete the control advances to the main service mode menu.

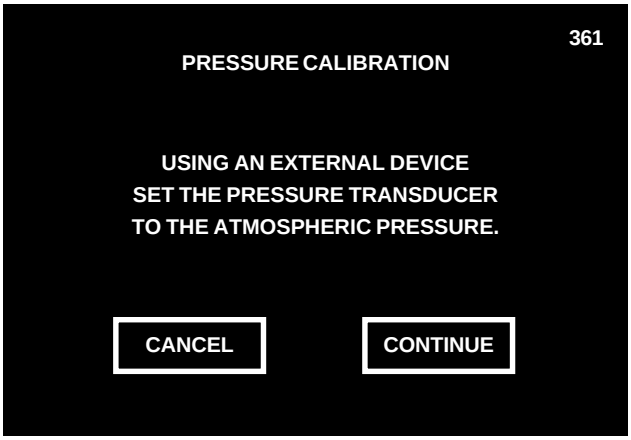
5.3.3.2 External Method of Pressure Calibration

This method of calibration requires that the pressure transducer be removed from its location and be placed in an external vacuum / pressure pump. This pump is used to set the pressure and vacuum levels required for calibration.

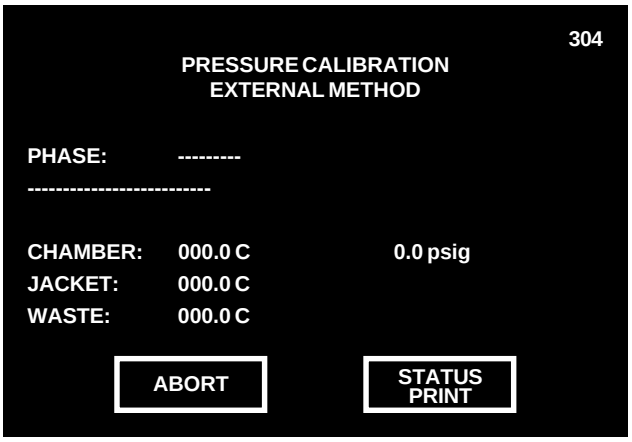
1. When any method of calibration is selected, the control advances to screen #306 for the entry of the calibrator's name. Use the keypad to enter your name, then press ENTER.



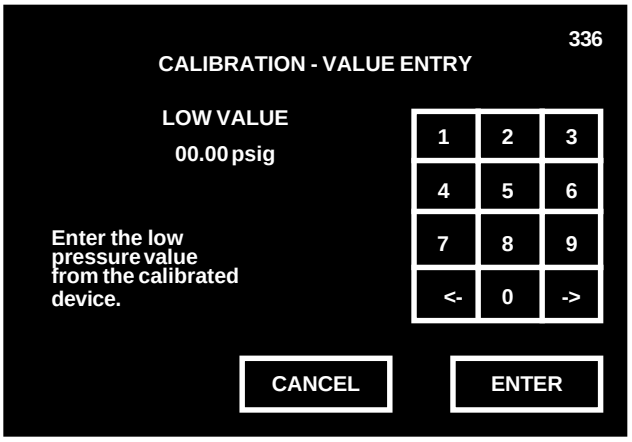
2. The control advances to screen #361. Set the external device to atmospheric, then press CONTINUE.



3. The control advances to the calibration cycle (screen #304) and stabilizes the pressure transducer.

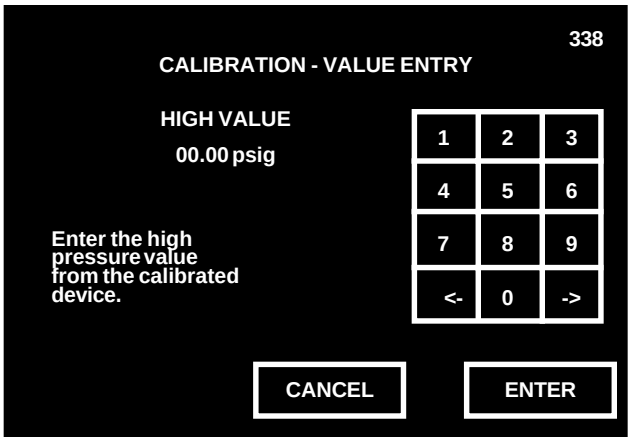


4. Once stabilized, the control advances to screen #336. Enter the low pressure value from the external device and press ENTER.

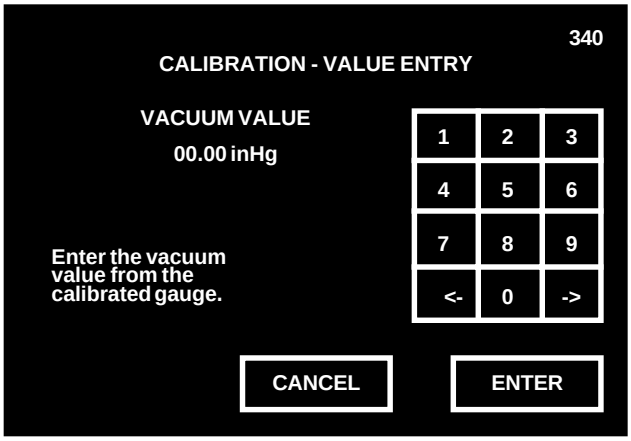


5. The control advances to the calibration cycle (screen #304) to stabilize the pressure transducer at the high pressure point. The control requires a minimum of 30 seconds to stabilize the transducer to a tolerance to ±1 psig.

6. Once stabilized, the control advances to screen #338 for entry of the high pressure value. Enter the value from the calibrated external device and press ENTER.



7. The control advances to the calibration cycle, stabilizing the transducer at the vacuum point. The control requires a minimum of 30 seconds to stabilize the transducer to a tolerance to ±2 inHg. Once stabilized the control advances to screen #340. Enter the vacuum point values from the calibrated external device and press ENTER.



8. The control then completes the calibration by advancing to screen #366. Replace the pressure transducer in its proper location and press CONTINUE to return to the main service mode menu.

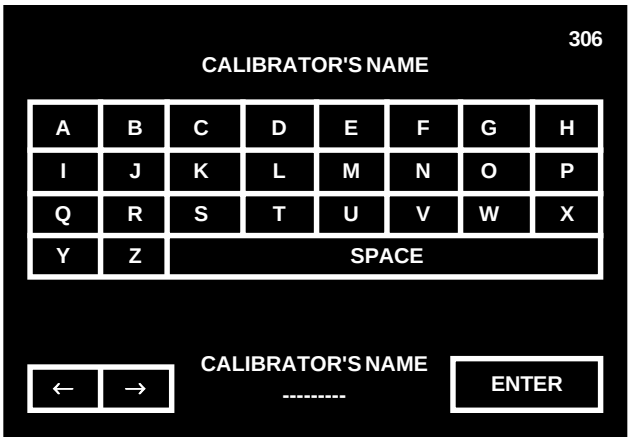
366
CALIBRATION COMPLETE
PLACE THE PROBE(S) BACK TO THEIR PROPER LOCATION.
MAKE SURE THE STERILIZER IS IN OPERATING CONDITION BEFORE CONTINUING.
CONTINUE

5.3.3.3 Load Values Method of Pressure Calibration

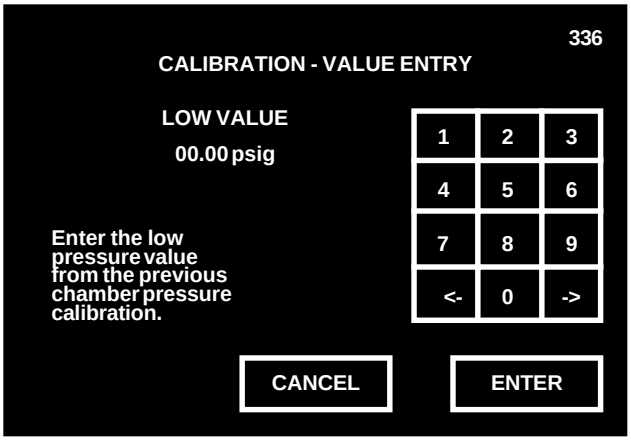
This method is used to load previously set values into the control memory. This method only needs be used as a "correction" following replacement of the control CPU board or the program chips on the CPU board.

IMPORTANT: *All previously set calibration values are printed when entering this procedure.*

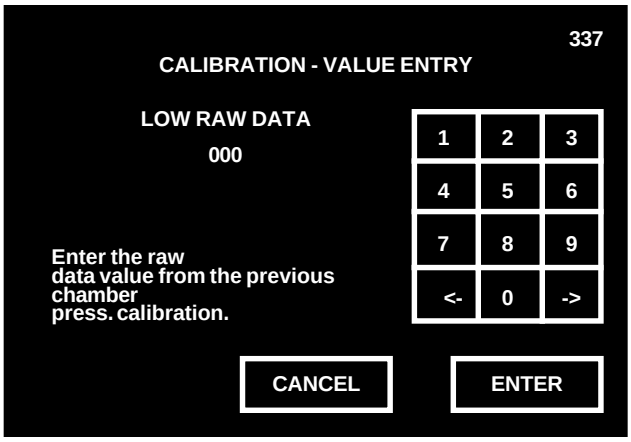
1. When any method of calibration is selected, the control advances to screen #306 for the entry of the calibrator's name. Use the keypad to enter your name, then press ENTER.



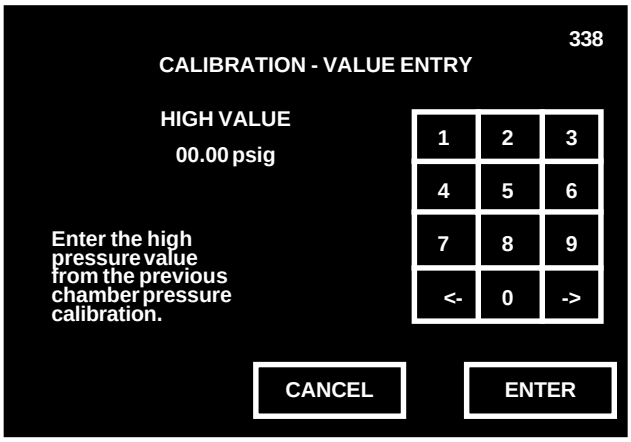
2. Control advances to screen #336, enter the low temperature value and press ENTER.



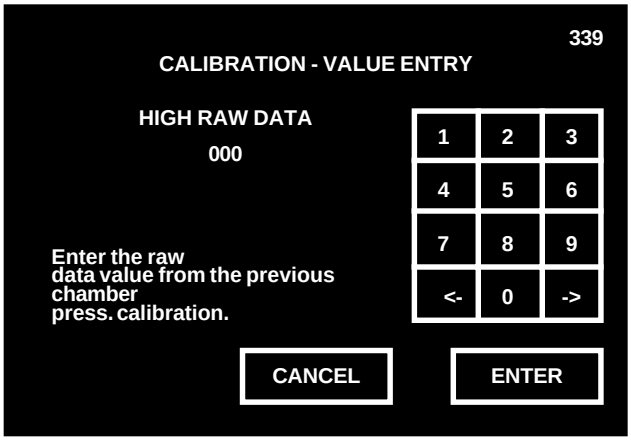
3. The control then advances directly to screen #337 for raw data entry. Raw data is a hexadecimal value; enter this value and press ENTER.



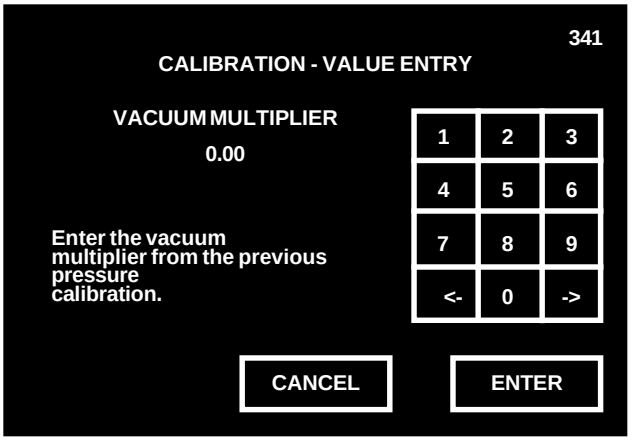
4. Following entry of the low value raw data, the control advances to screen #338 for entry of the high temperature value. Enter the value from the printout and press ENTER.



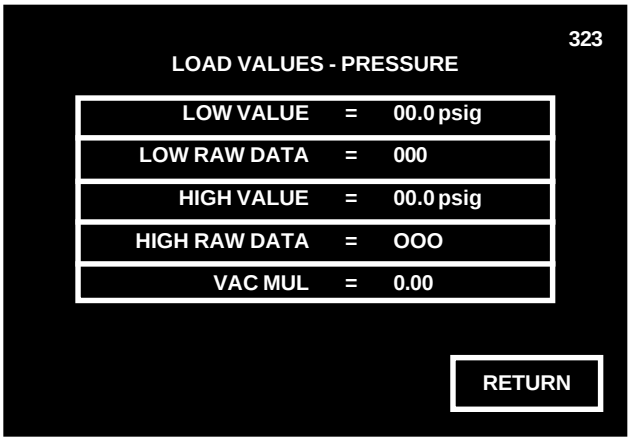
5. The control advances directly to screen #339 for entry of high temp raw data. Raw data is a hexadecimal value; enter this value and press ENTER.



6. Following entry of the high value raw data, the control advances to screen #341 for entry of the vacuum multiplier. Enter the value from the printout and press ENTER.



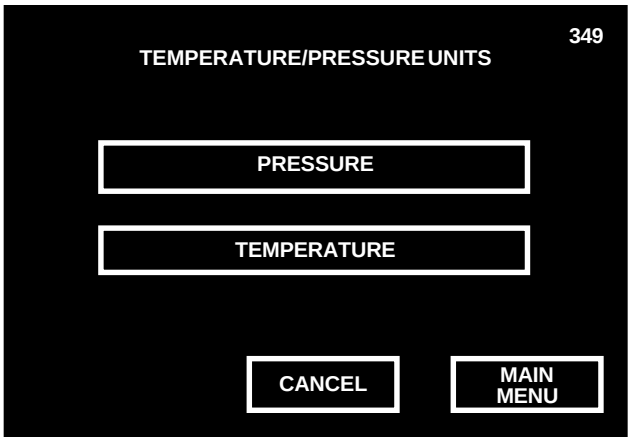
7. The control advances to screen #323. Compare the displayed values with those on the printout. Verify that they match. If the values do not match the printout, press the value that does not match and enter the value again. If the values match the printout, press RETURN to advance to screen #319.



5.3.4 Temperature/Pressure Units

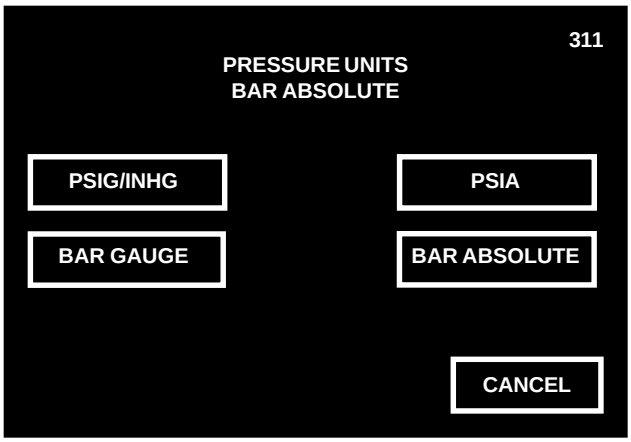
To select the temperature and pressure units used for display and printouts by the sterilizer, select CALIBRATION at screen #331, the control advances to screen #352. Press TEMP/PRESS UNITS, the control advances to screen #349.

At screen #349, press PRESSURE or TEMPERATURE as appropriate. If PRESSURE is selected, the control advances to screen #311. If TEMPERATURE is selected the control advances to screen #300.



5.3.4.1 Pressure Units

The currently selected unit is shown at the top of screen #311, just beneath the screen title. Press the appropriate pressure unit and the screen returns to screen #352.



psig/inHg – Pounds per square inch, gauge is used for positive pressure and in of mercury is used for vacuum.

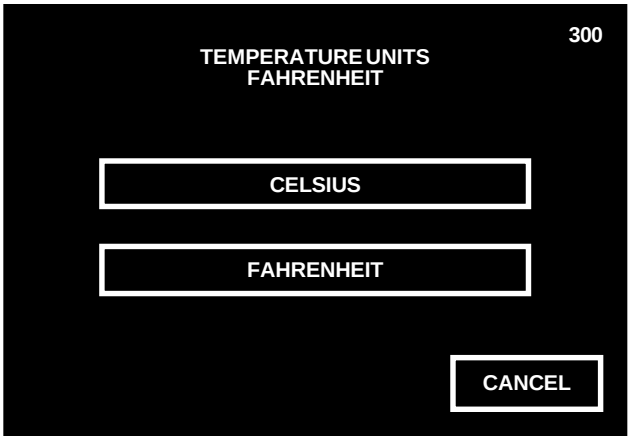
bar gauge – This is a scientific measurement. Bar Gauge is used for both positive and negative pressure.

psia – Pounds per square inch, absolute pressure measurement. Psia values are more constant than the psig/inHg values, since they reference a constant value of 0 pressure (29.9 inHg), whereas, the psig/inHg values reference an ever changing value, that is, 0 psig (atmospheric pressure). Since the psia values are constant, some scientific customers prefer them over psig/inHg values.

bar absolute – This is a scientific measurement. It is always referenced to absolute vacuum. Bar Gauge is used for both positive and negative pressure.

5.3.4.2 Temperature Units

The currently selected unit is shown at the top of screen #300, just beneath the screen title. Press the appropriate temperature unit and the screen returns to screen #352.

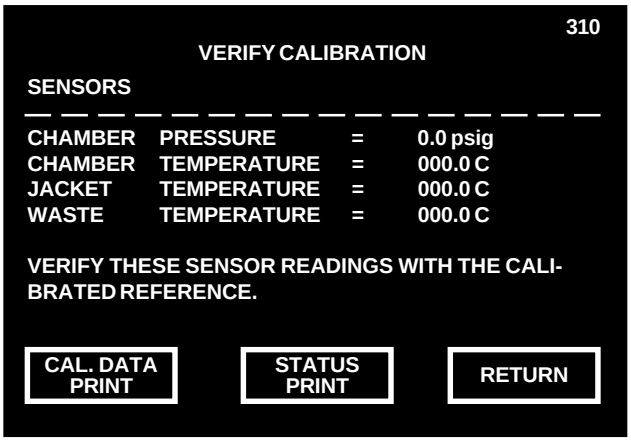


Fahrenheit – Typically used for Health Care accounts.

Celsius – Typically used for scientific accounts, or accounts outside the U.S.A.

5.3.5 Temperature/Pressure Verification

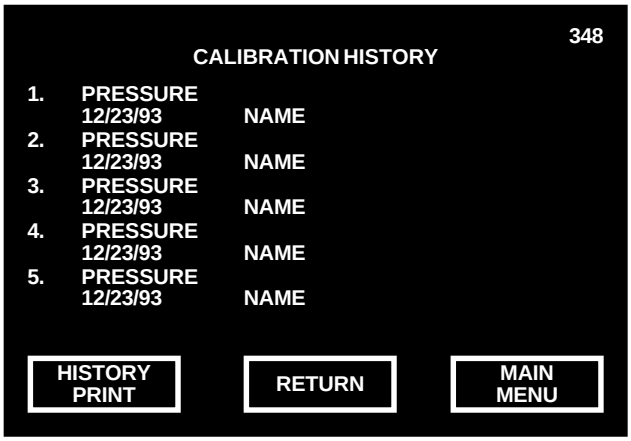
To access this screen, press TEMP / PRESS VERIFICATION at screen #352, the control advances to screen #310.



Screen #310 is used to determine if the currently set calibration values are accurate. Using this screen effectively requires that a calibrated device be used for reference. A calibrated pressure gauge (compound or Heise) must be connected to the chamber port adjacent to the pressure transducer. A calibrated device, such as a Trendicator or Pyrometer, must also be used to reference temperature.

⚠ WARNING! BURN HAZARD: Depressurize jacket before removing jacket RTD. Always verify that chamber and jacket pressure is at zero psig by observing the jacket and pressure gauges behind the front access door.

1. To verify RTD calibration, remove RTD from its normal location and place in a hot water bath, along with the thermocouple from the calibrated device. The temperature readings from the calibrated device and the sterilizer display should read within 1/2°. Recalibrate the sterilizer, if necessary.
2. Press CAL. DATA PRINT to create a printout of all calibration values. This data is the calibrated hex data which may be used when using the LOAD DATA method of calibration.
3. Press STATUS PRINT to get a current reading of temperature and pressure sensors.



5.3.6 Calibration History

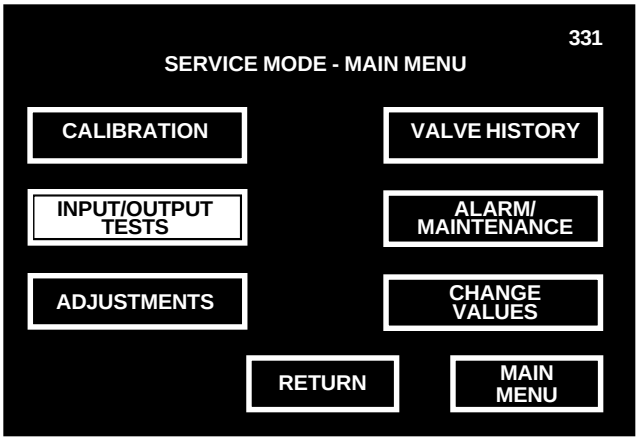
To access this screen, press HISTORY at screen #352, the control advances to screen #348.

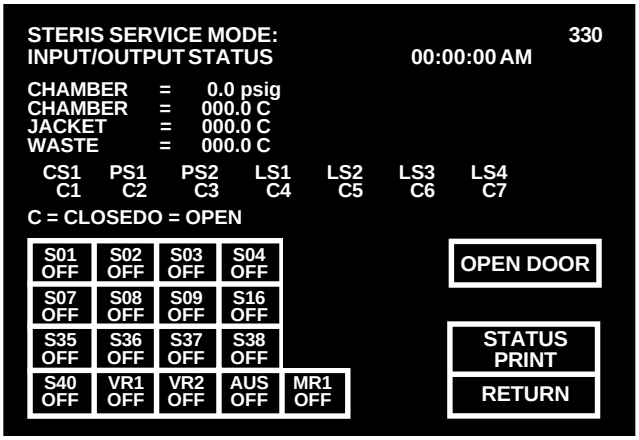
The last five calibration routines are shown on this screen. The name of the person performing the calibration is shown (if this information was input to control memory), as well as which component was calibrated.

The calibration history list can be printed by pressing HISTORY PRINT.

5.4 Input/Output Tests

Input/Output tests are accessed from the main service mode menu, screen #331, by pressing INPUT/OUTPUT TESTS. These tests are used to verify the operation of solenoid valves and limit switches through the sterilizer control. All activations can be verified by observing LEDs on the I/O board, and indicators on the display.





NOTE: *Screen shows double power door unit equipped with all possible standard scientific options.*

The current chamber and jacket temperatures, and chamber pressure are shown to aid in evaluating the sterilizer's performance.

- OPEN DOOR/CLOSE DOOR can be used to control the door without using the foot pedal (on power door sterilizers).
- STATUS PRINT can be used to printout the current temperature and pressure conditions in the chamber and jacket.
- Press RETURN to exit this test.

The indicators on the display are defined as follows:

NOTE: *1) The steam-to-chamber valve cannot be activated unless the door seal is pressurized. The steam-to-seal valve (for pressurizing the door seal) cannot be activated unless the door is closed*. 2) The limit switches instantly to switch activation, expect an approximate 1/2 second delay.*

**These valves will show activation on the display and on the I/O board LEDs, but because of the switched neutral design, the valves will not actuate.*

Limit Switches

CS1 = Chamber float switch. Normally Closed; opens during flooded condition.

PS1 = Operating end door seal pressure switch. Open when unsealed, closed when sealed.

PS2 = Non-operating end door seal pressure switch. Open when unsealed, closed when sealed.

LS1 = Operating end door up switch. Open when door is down, closed when door fully up.

LS2 = Non-operating end door up switch. Open when door is down, closed when door fully up.

LS3 = Operating end door pedal switch. Normally open.

LS4 = Non-operating end door pedal switch. Normally open.

Solenoid Valves:

S01 = Air Break

S02 = Steam to Chamber*

S03 = Chamber Drain Valve

S04 = Cooling Water Valve

S07 = Vacuum Water Valve

S08 = Steam to Chamber (Isothermal Only)

S09 = Steam to Jacket

S16 = Water to Vacuum Pump (Scientific Only)

S35 = Steam to Operating End Door Seal*

S36 = Steam to Non-operating End Door Seal (Double Door Only)*

S37 = Operating End Seal Exhaust

S38 = Non-operating End Seal Exhaust (Double Door Only)

S40 = Dual Exhaust (Liquids Cooling)

VR1 = Operating End Vapor Removal (Isothermal Only)

VR2 = Non-operating End Vapor Removal (Isothermal Only)

AUS = Auto Utility Shutdown (Optional Steam Generator)

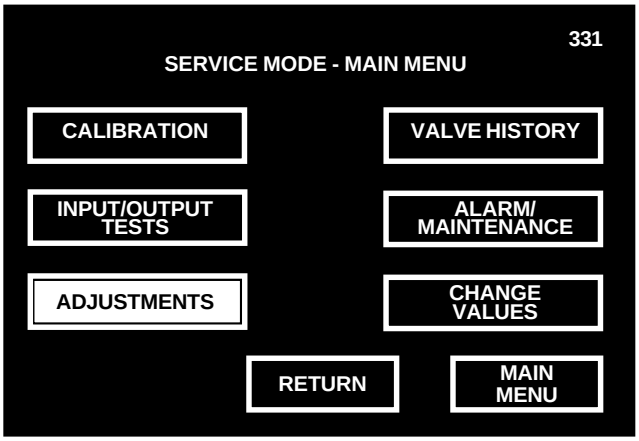
MR1 = Motor Relay Starter for Vacuum Pump (Scientific Only)

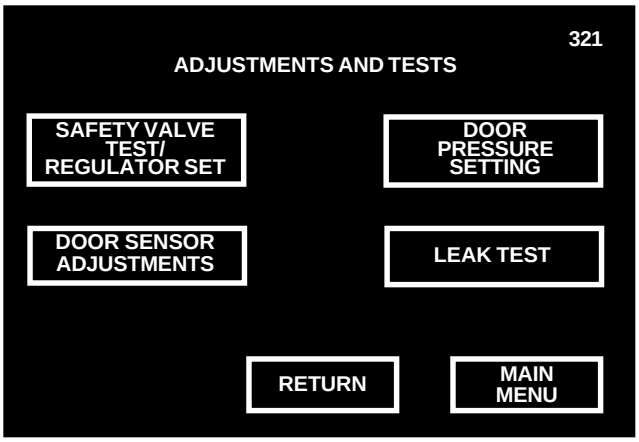
NOTE: Units that do not have options (e.g., MR1, VR1, etc.), will not show them on the display.

I/O Board LED	Driven Component
D1 or **D0**	Switched Neutral of S02
D2 or **D1**	Switched Neutral of S35
D3 or **D2**	Switched Neutral for S36 (Double Door Units)
D4 or **D3**	S02
D5 or **D4**	S35
D6 or **D5**	S36
D7 or **D6**	S01
D8 or **D7**	S09
D9 or **D8**	Steam Generator (AUS)
D10 or **D9**	S04
D11 or **D10**	S07
D12 or **D11**	S03
D13 or **D12**	S37
D14 or **D13**	Power Door Close signal
D15 or **D14**	S40
D16 or **D15**	Power Door Open Signal

5.5 Adjustments

This part of the service mode is used to make maintenance adjustments to the sterilizer. These tests are intended to be used when verifying the sterilizer's operation. It may be necessary to use these adjustments after replacing a component.





Access adjustments by pressing ADJUSTMENTS at screen #331, the control advances to screen #321.

5.5.1 Safety Valve Tests

This adjustment is used to verify the pressure adjustment and to verify the operation of the safety valve. Begin this test by pressing SAFETY VALVE TEST / REGULATOR SET at screen #321.

WARNING! Burn Hazard: Depressurize the sterilizer's jacket before removing the jacket gauge. Verify the jacket pressure is at zero psig before removing the jacket pressure gauge.

The control advances to screen #317. Read the instructions on the screen carefully, and follow them closely in the order shown.

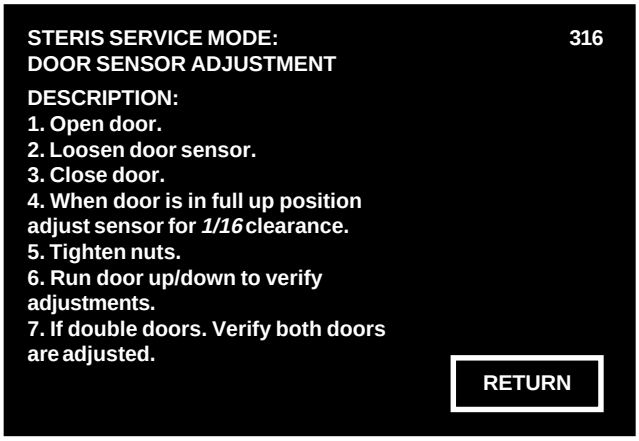
STERIS SERVICE MODE:
317
SAFETY VALVE TEST & REGULATOR SETTING
DESCRIPTION:
ELAPSED TIME 00:00
1. Depressurize jacket and install calibrated gauge in place of sterilizer jacket gauge.
2. Close door.
3. Allow jacket to charge and stabilize.
4. Press start test -- S09 will turn on.
5. Adjust regulator clockwise slowly until safety valve opens. Verify valve opens at 50-52 psig.
6. Press stop test.
7. Back regulator down by turning counterclockwise at least 1 turn.
8. Press start test.
9. Adjust regulator slowly to 46 psig.
10. Depressurize jacket and re-install sterilizer jacket gauge.
START TEST
STOP TEST S09 OFF
RETURN

Press RETURN to end this test.

5.5.2 Door Sensor Adjustments

This procedure is used to adjust the proximity switch for the "door-up" sensor.

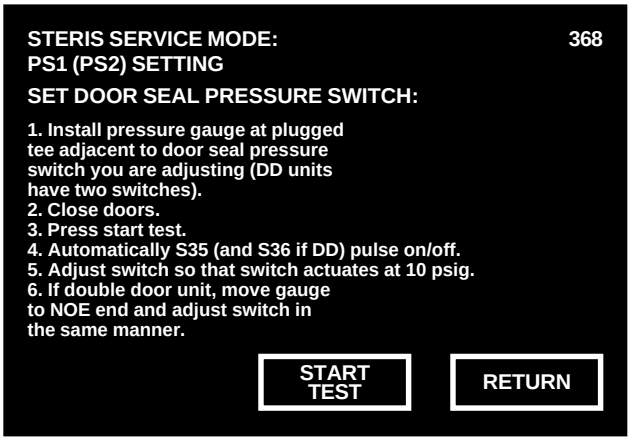
Access this adjustment by pressing DOOR SENSOR ADJUSTMENTS at screen #321. The control advances to screen #316. Read the instructions on the screen before attempting the test.


STERIS SERVICE MODE:
316
DOOR SENSOR ADJUSTMENT
DESCRIPTION:
1. Open door.
2. Loosen door sensor.
3. Close door.
4. When door is in full up position adjust sensor for 1/16 clearance.
5. Tighten nuts.
6. Run door up/down to verify adjustments.
7. If double doors. Verify both doors are adjusted.
RETURN

NOTE: *The control sounds a pulsing tone whenever the door limit switch is actuated during this test.*

Press RETURN to end this test.

5.5.3 Door Pressure Settings


STERIS SERVICE MODE:
368
PS1 (PS2) SETTING
SET DOOR SEAL PRESSURE SWITCH:
1. Install pressure gauge at plugged tee adjacent to door seal pressure switch you are adjusting (DD units have two switches).
2. Close doors.
3. Press start test.
4. Automatically S35 (and S36 if DD) pulse on/off.
5. Adjust switch so that switch actuates at 10 psig.
6. If double door unit, move gauge to NOE end and adjust switch in the same manner.
START TEST
RETURN

This procedure is used to verify adjustments of the door pressure switches (PS1 and PS2).

Access this adjustment by pressing DOOR PRESSURE SETTING at screen #321. The control advances to screen #368. Read the instructions on the screen before attempting the test.

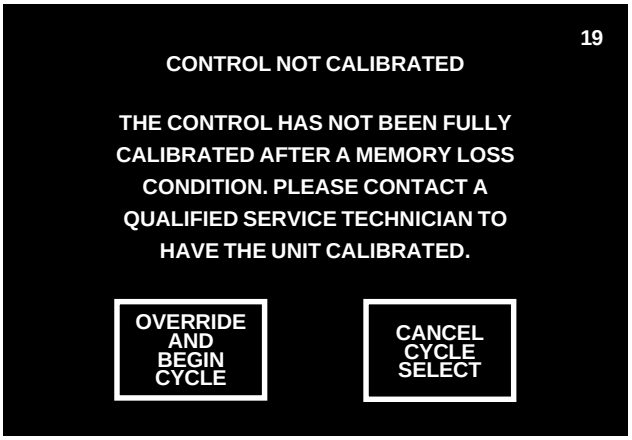
Press RETURN to end this test

5.5.4 Leak Test

This is a standard leak test, and is used to verify the integrity of the sterilizer piping.

Access the test by pressing LEAK TEST at screen #321. The control advances to the standard Leak Test. Once complete, the control returns to screen #321.

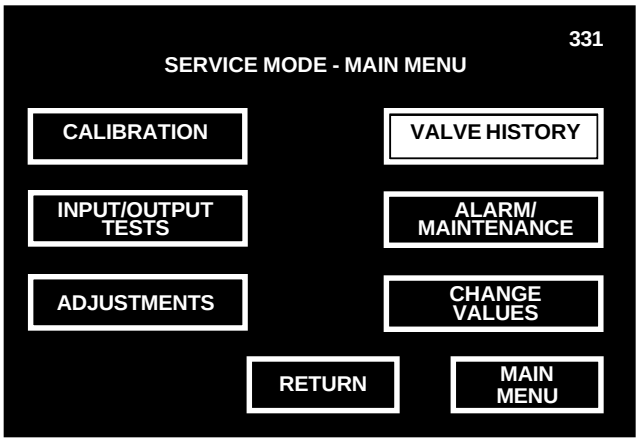
If the control is not properly calibrated, screen #19 appears on the display.

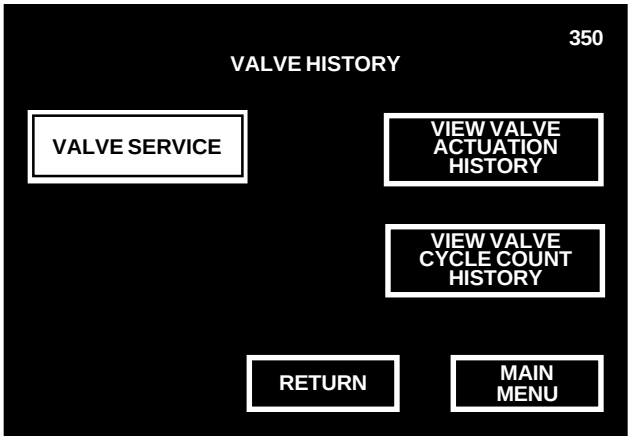

19
CONTROL NOT CALIBRATED
THE CONTROL HAS NOT BEEN FULLY CALIBRATED AFTER A MEMORY LOSS CONDITION. PLEASE CONTACT A QUALIFIED SERVICE TECHNICIAN TO HAVE THE UNIT CALIBRATED.
OVERRIDE AND BEGIN CYCLE
CANCEL CYCLE SELECT

5.6 Valve History

These screens and procedures are used to maintain a service history for the sterilizer and its components. This history is primarily intended to track the usage and servicing of door seals and solenoid valves in the piping manifolds.

Access these screens by pressing VALVE HISTORY at screen #331. The control advances to screen #350.

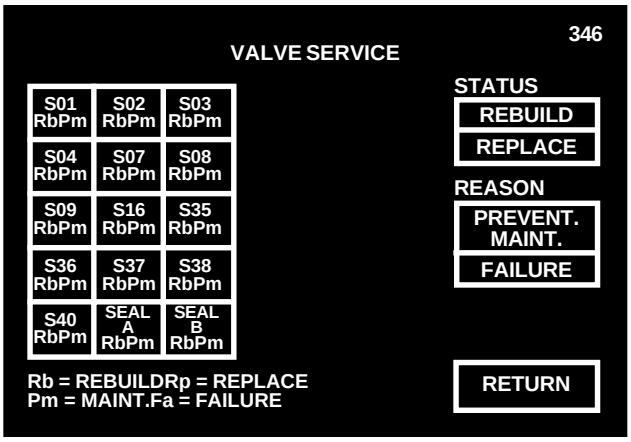




5.6.1 Valve Service

This screen is used by the technician to log in service history. Access this screen by pressing VALVE SERVICE at Screen #350, the control advances to screen #346.

Each of the touch screen buttons to the left of the screen represent a solenoid valve or a door seal. When the component has been serviced (and the service procedure logged in), one or more codes are displayed within the button. If the component has never been serviced, the button should be blank, aside from its designation (e.g., “S02”).



Status:

Rb = Rebuild

Rp = Replace

Reason:

Pm = Activity due to standard preventive maintenance

Fa = Activity due to a valve or seal failure

To use screen #346, press the touch screen button on the left with the appropriate valve designation (e.g., for Steam to Chamber Valve, press "S02"). The selected screen button is then highlighted.

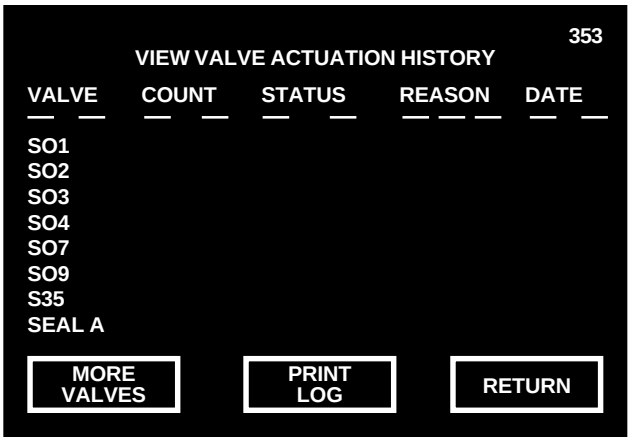
Once selected, enter the appropriate procedure by pressing one of the touch screen buttons on the right of the screen.

Press RETURN to exit this screen.

5.6.2 View Valve Actuation History

This screen displays the total number of times valves and door seals have been turned on since last serviced.

Access this screen by pressing VIEW VALVE ACTUATION HISTORY at screen #350. The display advances to screen #353.



Valve = Valve designation

Turn On = The number of times the valve or seal has been turned on since it was last serviced.

Status = The last service procedure performed on the valve or seal (i.e., Rebuild or Replace).

Reason = The reason the valve or seal was last serviced (i.e., Preventive Maintenance or Failure).

Date = Date of last service procedure.

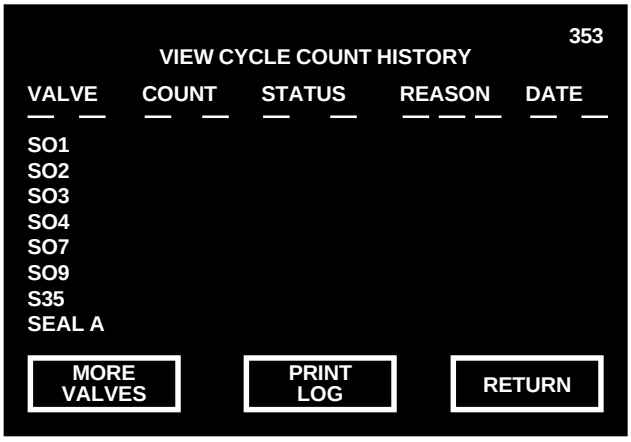
Press MORE VALUES to show any valves not currently displayed.

Press PRINT LOG to create a printout of the valve actuation history.

5.6.3 View Valve Cycle Count History

This screen displays the total number of cycles on the valves and door seals since last serviced.

Access this screen by pressing VIEW VALVE COUNT HISTORY at screen #350. The display advances to screen #353.



Valve = Valve designation

Count = The number of cycles the valve or seal has been activated since it was last serviced.

Status = The last service procedure performed on the valve or seal (i.e., Rebuild or Replace).

Reason = The reason the valve or seal was last serviced (i.e., Preventive Maintenance or Failure).

Date = Date of last service procedure.

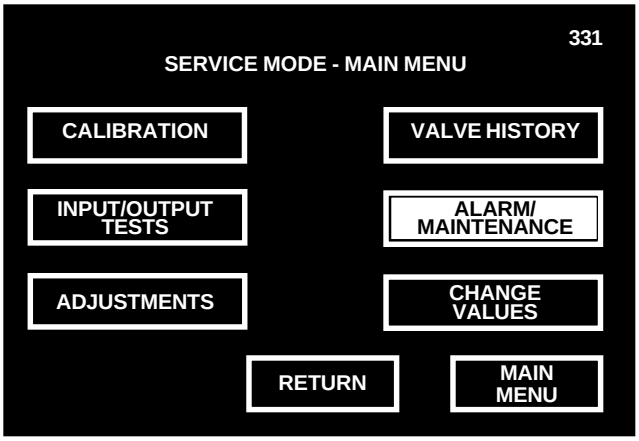
Press MORE VALVES to show any valves not currently displayed.

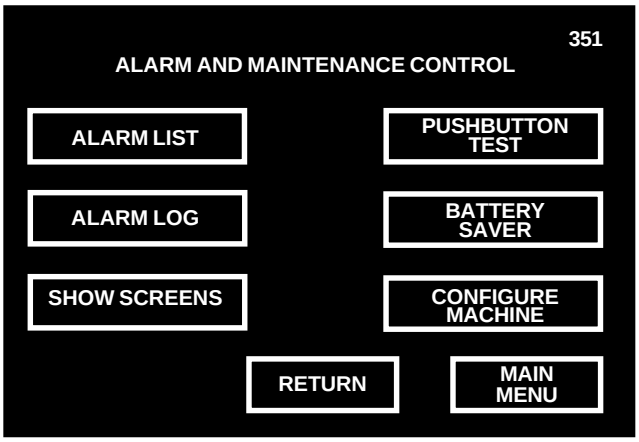
Press PRINT LOG to create a printout of the valve cycle count history.

5.7 Alarm Maintenance

These screens are used to review the alarm history of the sterilizer. The last four cycles are retained in the sterilizer's memory. The entire library of alarm screens can also be accessed and viewed under this function.

To access this screen, press ALARM MAINTENANCE at screen #331. The control advances to screen #351.

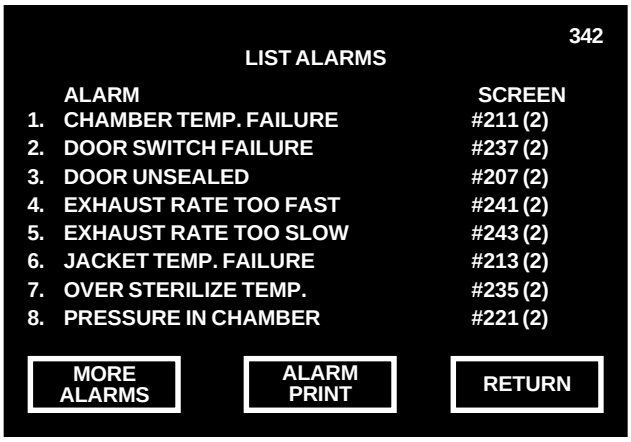




5.7.1 Alarm List

Access this list by pressing ALARM LIST at screen #351. The control advances to screen #342 displaying alarms 1 through 8. Press MORE ALARMS to display alarms 9 through 16. Then press MORE ALARMS to display alarms 17 through 23. Press PREVIOUS to back up one screen. Press RETURN to return to screen #351.

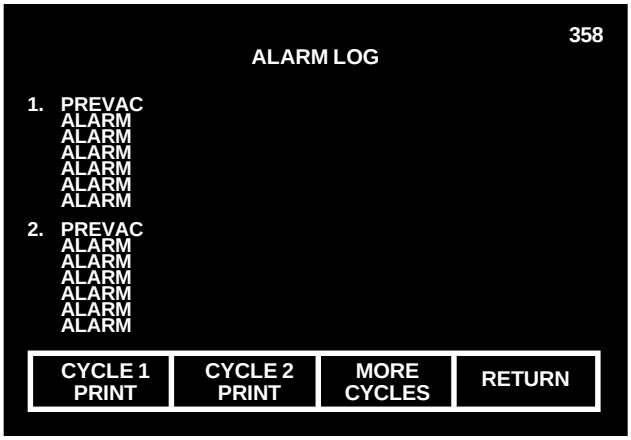
Refer to Operating Instructions for an explanation of individual alarms.



5.7.2 Alarm Log

This screen is used to view any alarms that occurred in the last four cycles run.

Access this screen by pressing ALARM LOG at screen #351. The screen advances to screen #358. The last two cycles and their alarms are shown on this screen. To view the previous two cycles, press MORE CYCLES.



- The name and date of each cycle is shown.
- The type and time is shown for each alarm occurrence.
- If a printout of any of the four available cycles is required, press the CYCLE # PRINT with the appropriate cycle number.

Press RETURN to return to screen #351.

5.7.3 Show Screens

The text of each alarm screen can be displayed on the control.

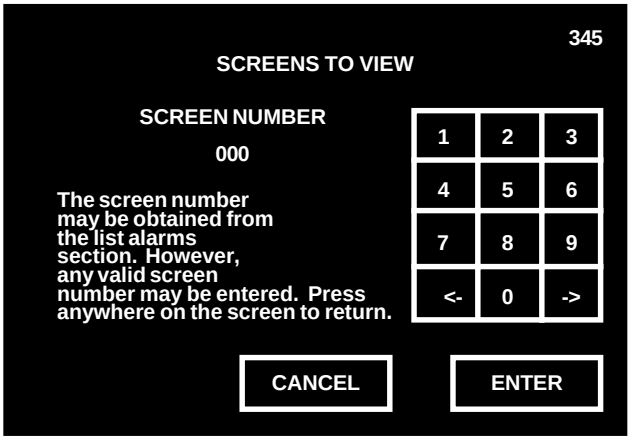
To call up a specific screen, first reference the screen number and title on screen #342, #343 or #344. Return to screen 351 and press SHOW SCREENS. The control advances to screen #345. Enter the alarm

screen number using the keypad to the left of the screen, then press ENTER.

NOTE: *Any screen number known can be entered here, not just alarm screens.*

Once the called-up screen appears on the display, press anywhere on the display screen to return to screen #351.

NOTE: *If screen is a two part screen (as are most alarm screens) touching the screen anywhere once advances to the second screen in the set. Pressing the display a second time returns the control to screen #351.*



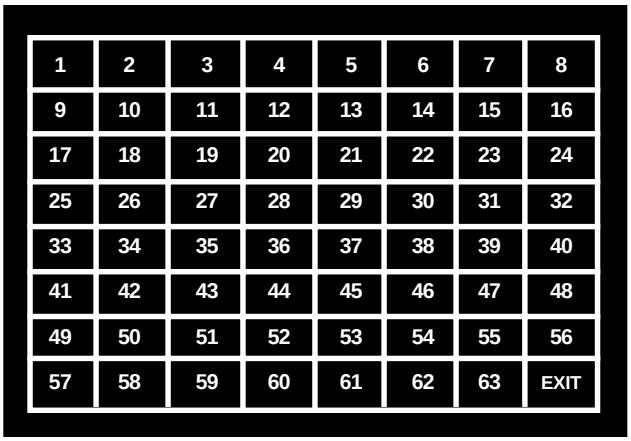
5.7.4 Pushbutton Test

This screen is used to verify that the touch screen is working correctly.

To access this screen, press PUSHBUTTON TEST at screen #351. The control advances to the push button test. This test screen has no screen number.

The pushbutton test functions by touching any of the numbered squares shown. If the screen pushbutton is working correctly, the area of the display should become highlighted as long as pressure is applied to it.

Press EXIT to return to screen #351.



5.7.5 Battery Saver

This screen can be used to shut off the control system RAM battery when the sterilizer is placed in extended storage.

NOTE: *If the battery has been "saved" the clock turns off whenever the sterilizer is turned off. If will be necessary to reset the clock (time and date) if the battery has been saved then restored to operation.*

To access this screen, press BATTERY SAVER at screen #351. The control advances to screen #359. Read the screen carefully before proceeding.

- Press YES to save the battery. The control returns to screen #351.
- Press NO to return to screen #351 without saving the battery.

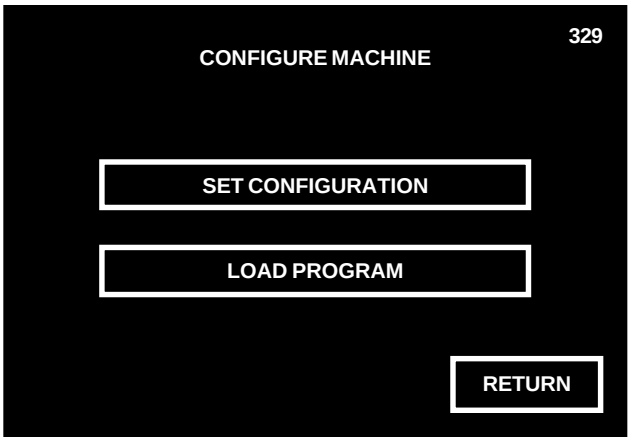
5.7.6 Configure Machine

359
BATTERY SAVER
THE BATTERY SAVER WILL TURN THE BATTERY OFF. THE CHANGE VALUES PARAMETERS WILL BE LOST WHEN THE POWER IS TURNED OFF.
ARE YOU SURE YOU WISH TO TURN THE BATTERY OFF?
YES
NO

These screens are used to setup the machine, designating chamber size, door type, presence of a generator, other optional equipment and serial number. These screens can also be used to download a new program from an outside source into the control system.

Access this screen by pressing CONFIGURE MACHINE at screen #351. The control advances to screen #329. At screen #329 select whether you wish to change the control system configuration or download a new program into the system.

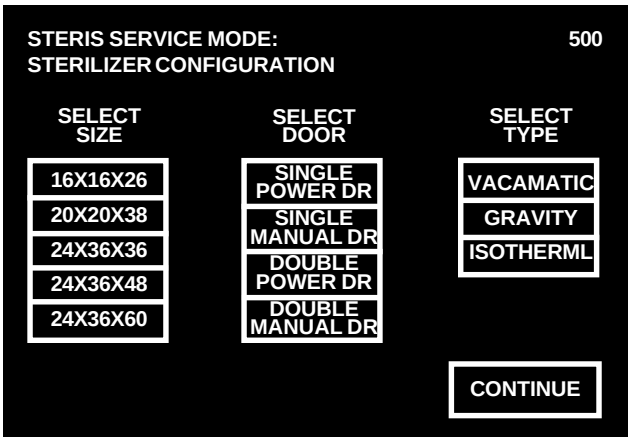
- Press SET CONFIGURATION to change the system configuration.
- Press DOWNLOAD PROGRAM to download a new program from an outside source. This is a factory procedure and not to be used in the field.



5.7.6.1 Set Configurations

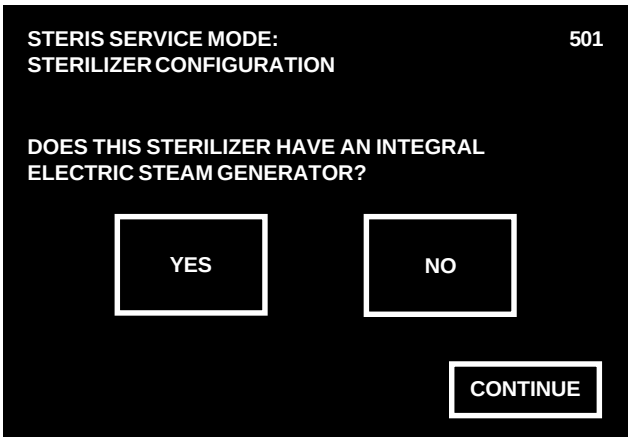
This set of screens is used to setup the machine's control program to match the actual physical options the sterilizer possesses.

To set the configuration, press SET CONFIGURATION at screen #329, the control advances to screen #500. At screen #500, set sterilizer size and sterilizer door arrangement. Sterilizer type can also be selected for scientific units ("type" selection is not available for Health Care sterilizers).



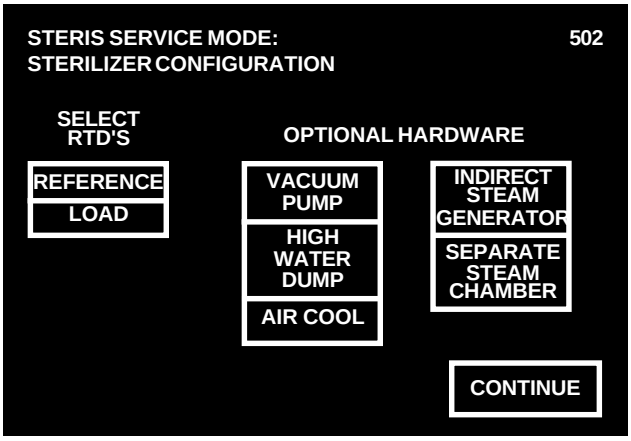
Once the options on screen #500 have been selected, press CONTINUE. The control advances to screen #501.

Screen #501 is used to select the optional steam generator. If the sterilizer is to use an integral steam generator, press YES. If the sterilizer is to operate using "house steam" press NO or CONTINUE. In either case the control advances to screen #502 (scientific sterilizers only). Health Care sterilizers advance to screen #503.



Once the steam generator option has been selected, press NO or CONTINUE. If the sterilizer is a scientific unit, the control advances to screen #502. If the sterilizer is a Health Care unit, the control advances to screen #503.

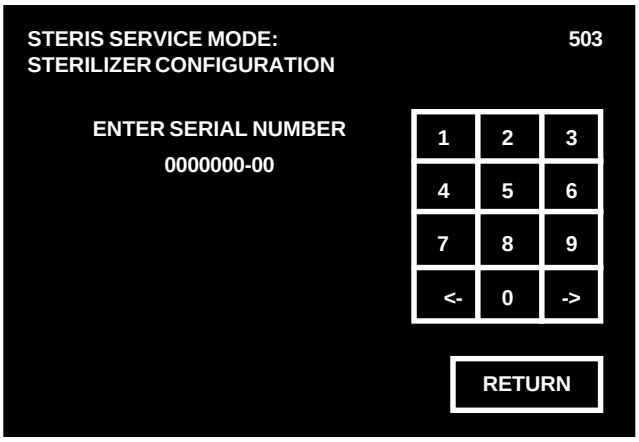
Screen #502 is used to select various scientific options. Scientific options include load or reference RTDs, vacuum pump, high water pump, air cooling, indirect steam generator and a separate steam chamber (used for units that have direct steam to chamber piping source). Select these options as required by the physical layout of the sterilizer by pressing the appropriate touch screen button. Once all appropriate options have been selected, press CONTINUE to advance to screen #503.



NOTE: *The sterilizer's serial number is printed on a label affixed to the sterilizer's stand.*

Screen #503 is used to enter the serial number of the sterilizer. Enter the number using the key pad to the right of the screen.

Once the number is complete and correct, press ENTER, the control returns to the main service mode menu.



5.8 Change Values

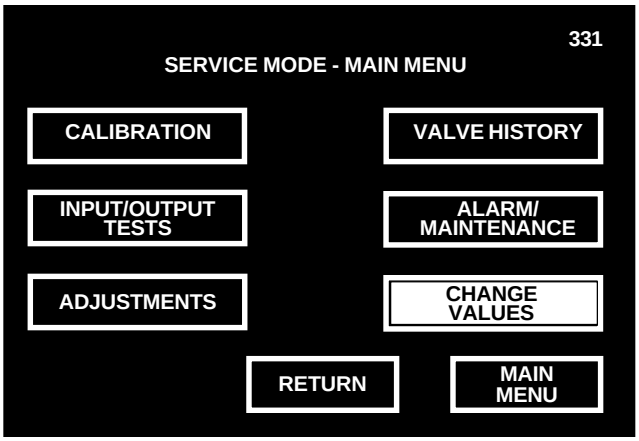
The CHANGE VALUES selector in the service mode is common to both Health-Care and Scientific Century sterilizers. Note that many cycle set up values for Scientific units are not found in the Service Mode, rather they are available under the different menu selections found only on Scientific units. Refer to the operator manual (129367-549 Gravity, 129367-551 Prevac, 129367-553 Iso) Sections 7, 8, and 9 for proper access.

The Health-Care version sterilizer limits the ability to adjust cycle parameters since the unit is a medical device.

To access CHANGE VALUES press the appropriate touch pad on screen #331.

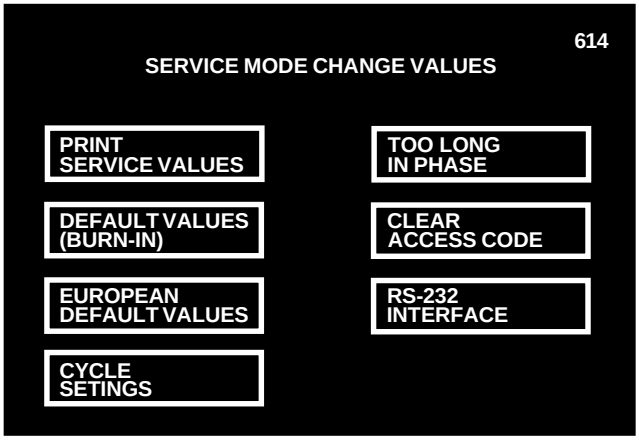
Screen #355 will be displayed, allowing adjustment of the Cycle Count and Run Time. When adjustments have been made, screen #614 will be displayed.

- Select PRINT SERVICE VALUES and printer will print:
  - too long in phase values
  - purge time settings



- Select DEFAULT VALUES (burn-in) and control will restore factory default values.
- Select EUROPEAN DEFAULT VALUES and control will allow the service technician to load European cycle values.

NOTE: *Some programs do not have European default values section.*



- Select CYCLE SETTINGS and control will allow adjustment of purge time (early revision software does not have this selection available).
- Select TOO LONG IN PHASE and control will allow adjustment of too long in step alarms.
- Select STEAM ACCESS CODE and control will remove any customer selected access codes.
- Select RS-232 INTERFACE and control will allow printer to be interfaced with either a computer or and external printer.

Section 6: Field Test Procedure

6.1 GENERAL

NOTE: The following procedures are to be used to completely evaluate the operation of a Eagle® Century™ Series sterilizer. In most cases not all procedures will have to be followed, unless major repairs have been made on the sterilizer. Where only minor repairs have been made, select only those procedures that are applicable.

6.1.1 Section Index

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SECTION 2. Installation Data 6-2

SECTION 3. Installation Verification 6-3

SECTION 4. Control Setup 6-3

SECTION 5. Loss of Power Test 6-3

SECTION 6. Input/Output Status and Wiring Check 6-3

SECTION 7. Door Check 6-5

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SECTION 12. Safety Valve Test and Regulator Setting 6-7

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CAUTION: Whenever working under the sterilizer door, raise the door to its full up position and insert both tethered door pins. Be sure the pins are subsequently removed before door actuation is initiated.

NOTES:

1. *When component designations are referenced in parentheses, such as S35 (36):*
   - *S35 and S37 are relevant for single door units.*
   - *S35 and S37 are relevant for the OE (Operating End) door of double door units, and S36 and S38 for the NOE (Non Operating End) of double door units.*
2. *The field test procedure will require entering the Service Mode for several tests. The access code for entering the service mode is the current year, for example when the control is showing the year as 1994, the access code is 1994. When the year is updated January 1st, the access code also updates.*

6.2 TEST INSTRUMENTATION REQUIRED

1. Calibrated compound test gauge (30" vacuum and 60 psig, ± .5% full scale accuracy.)
2. Amp meter (max. current 100 amp, electric generators only).
3. Calibrated absolute pressure gauge (W/T gauge or Heise gauge)
4. (2) Jumper wire, 18 ga, 6" in length.

6.3 INSTALLATION DATA

PLUMBING CONNECTIONS	PIPE SIZE	PRESSURE
Steam Supply	1/2 NPT	50 - 80 psig
Cold Water Supply	1 NPT	30 - 50 psig [1]
Waste	1 1/8 ODT	
Generator Water Supply	1/2 NPT	20 - 50 psig

ELECTRICAL	VOLTS	FREQUENCY	PHASE
Control	120	50/60 Hz	1
Electric Boiler Control	120	50/60 Hz	1
Electric Boiler Heaters	208/240	50/60 Hz 440/480	3

NEEDLE VALVES	SETTING
FC-1[2] Exhaust Cooling	45° from Centerline of Pipe
FC-2 Seal Bleed (OE Door)	1/2 Turn Open
FC-3 Seal Bleed (NOE Door)	1/2 Turn Open

NOTES:

[1] Sterilizer water pressure must be within these values when operation (dynamic reading). Operation outside these values will result in improper operation of vacuum system.

[2] Adjust as required to eliminate water splash from funnel.

6.4 INSTALLATION VERIFICATION

1. Verify level of sterilizer by use of a spirit level on the end frame. Adjust the floor pads as required.
2. Verify adjustment of flow control valve settings as noted above. For needle valve settings first open valve several turns to blow out any debris that may be present in the valve seat, and then adjust per above settings. The seal must be activated in order to blow out any debris.
3. Install calibrated compound gauge to the incoming steam line strainer fitting and verify steam pressure. Operate unit through a cycle to verify pressure under dynamic conditions.
4. Install calibrated compound gauge to the incoming water line strainer fitting and verify water pressure. Operate unit through a cycle to verify pressure under dynamic conditions.

   On units with steam generators, install the compound gauge to the generator incoming water line strainer and verify water pressure. Allow generator water fill pump to cycle several times to verify pressure under dynamic conditions.

6.5 CONTROL SETUP

This section will be used to verify the configuration of the sterilizer. Enter the service mode and get into Alarm/Maintenance menu. Select CONFIGURE MACHINE, then select SET CONFIGURATION. Verify the size, door, and type are correct. The selected configuration will be lit up on the display. Once completed, press CONTINUE and select if the unit does or does not have an integral steam generator.

NOTE: *Failure to configure the sterilizer properly will result in improper operation.*

Pressing CONTINUE will show any optional hardware that may be present on the unit. Press CONTINUE and input the correct serial number of the sterilizer.

The CPU, I/O, interface, and printer boards contain various jumper pins and dip switches. Refer to the Control section of this manual for proper settings of these components.

6.6 LOSS OF POWER TEST

1. Turn OFF main power supply to the unit.
2. Wait 10 seconds then turn main power supply switch ON.
3. Verify that a LOSS OF MEMORY message *is not* printed.
4. If LOSS OF MEMORY prints, the battery on the Control Board must be replaced. The battery is a Dallas DS1260 Smart Battery, STERIS P/N 93915-047.

NOTE: *If battery is turned off, Loss of Memory will be printed. See Battery Saver procedure in Service Mode to determine if battery is on or off.*

6.7 INPUT/OUTPUT STATUS AND WIRING CHECK

1. Enter the Service Mode and press INPUT/OUTPUT TESTS.
2. The sterilizer water valve(s) is to be open and steam supply valves must be closed.
3. Check each solenoid valve in the following sequence by switching the corresponding switch on the display, one at a time. Verify that the DIN connector lights up for that valve. Also, check for the proper ON and OFF operation shown on the display. If any of the solenoid coils do not receive the signal, check wire connections, switches and power supply before checking the harness.

The following must be checked. Valves are to be energized and then deenergized.

S1	AIR BREAK VALVE
S3	CHAMBER DRAIN VALVE
S4	COOLING WATER VALVE
S7	VACUUM WATER VALVE
S9	STEAM TO JACKET VALVE
S37	OE SEAL EXHAUST VALVE
S38	NOE SEAL EXHAUST VALVE (Double Door Only)
S40	DUAL EXHAUST VALVE
AUS	AUTO UTILITY SHUTDOWN (Electric Generator Only)
VR1	OE VAPOR REMOVAL SOLENOID (Scientific Only)
VR2	NOE VAPOR REMOVAL SOLENOID (Scientific Double Door Only)

The following will test the lockout of S35/S36 valves if the door is not closed.

NOTE: *The jacket must be at 0 psig for the following S35/S36 tests.*

Slide door down 1", and verify that the door up proximity switch is no longer lit. The LS1 on the display will show OPEN for the OE door, LS2 will show OPEN for the NOE door.

Activate:

S35	OE SEAL STEAM VALVE
S36	NOE SEAL STEAM VALVE (Double Door Only)

Verify that S35 and S36 do not actuate with the door down. Note that the control will show actuation, but the solenoid coil should not receive power. Then raise door up so that the door up proximity switch is actuated. LS1 on the display will show CLOSED for the OE door, LS2 will show CLOSED for the NOE door. Verify that S35 and S36 coils now receive power.

The following will test the lockout of S2 if the steam to seal pressure switch is not satisfied.

NOTE: *The jacket must be at 0 psig for start of the following S2 tests.*

Raise door(s) so that door up proximity switch is actuated.

- Verify steam to seal pressure switch(es) are open (PS1 and PS2 are shown OPEN on the display).
- Connect jumper wire across PS1 door seal pressure switch. Verify that PS1 on display shows CLOSED. On double door units install a jumper onto PS2 switch also.
- Activate S2 - STEAM TO CHAMBER VALVE. The valve should activate. Remove jumper on PS1, S2 on the control display will still show activated, but the S2 coil should lose power. Reinstall jumper on PS1, S2 coil should now receive power. Remove jumper on PS2. S2 should now deactivate. Remove both jumpers.

The following will test the lockout of S8 (isothermal units only) if the steam to seal pressure switch is not satisfied.

NOTE: *The steam supply valve must be off for this test.*

- Raise door(s) so that door up proximity switch is actuated.
- Verify that the steam to seal pressure switch(es) are open (PS1 and PS2 are shown OPEN on the display).
- Connect jumper wire across PS1 door seal pressure switch. Verify that PS1 on display shows CLOSED. On double door units install a jumper onto PS2 switch also.
- Activate S8 — STEAM TO CHAMBER VALVE. The valve should activate. Remove jumper on PS1, S2 coil should lose power, even though the display shows activated. Reinstall jumper on PS1 and remove jumper on PS2. S8 should deactivate. Remove both jumpers.

4. Chamber Switch CS1 test — open door and located chamber water switch adjacent to the chamber drain. Reach in, pull switch up and observe whether CS1 changes on the display as the switch is raised and then lowered.
5. Press the RETURN button when all testing is complete.

6.8 DOOR CHECK

Manual Door

1. Actuate the door up and down with the pedal and handle several times and insure that operation and feel is normal, that the door is held in the up position, and that there are no mechanical interferences or unusual noises.
2. With the door in the normal up position, lower the door with the foot pedal and measure the travel time. Ensure that the time to lower is between 7 and 9 seconds for the 16x16 and 8 1/2 - 11 seconds for the 20x20.
3. Repeat the check on the opposite end door if unit is a double door sterilizer.

Power Door

1. Actuate the door up and down with the pedal and handle several times and insure that operation is normal, that the door is held in the up position, and that there are no mechanical interferences or unusual noises.
2. With the door in the normal down position, raise the door with the foot pedal. The vertical force at the handle center to stall the door when it is about half way is between 5 and 8 pounds. This is best measured by hanging a suitable 5 to 8 lb weight on the door and verifying that the door drive slips and the door remains stationary.
3. Repeat the check on the opposite end door if the unit is a double door sterilizer.

6.9 ELECTRIC GENERATOR SET-UP (ELECTRIC UNITS ONLY)

Setup

1. Enter the Service Mode and select INPUT/OUTPUT TESTS. Turn on the generator by pressing the **AUS** button on the touch screen.
2. With generator drain valve (ball valve at the side of generator) closed, open water supply valve to

generator. Turn on the steam supply valve to the sterilizer.

3. The 120 VAC will be ON to run pump. Turn the 3-phase power ON. Measure voltage and current of generator for 3-phase power. Nominal values are listed below:

Generator Electrical Specifications

Nominal Voltage (VAC/PH)	Nominal Current (AMP/PH)	Nominal Power (KILOWATTS)
208/240	62/72	22.3/30
440/480	31/36	22.3/30

NOTE: *Current readings only occur when the heater contactors are pulled in.*

4. The generator maximum working pressure is 85 psig. Bleed off excessive steam pressure by *slowly* opening generator drain valve. Readjust main pressure switch to cutout at 80 to 85 psig. Cutin pressure must have a differential of 5 to 10 psig.
5. With working pressure in generator, check for leakage.

6.9.1 Boiler Low Water Cutoff Test

1. With 3 phase power to heaters OFF, 120 VAC ON and steam pressure in generator, shut OFF water supply to the generator. *Slowly* open generator drain valve. As water drains from the generator the low level cutoff must de-energize the heaters. Verify that the heater contactors open.
2. Close generator drain valve and open water supply valve to generator. As the water level rises in the generator, the contactors must be reenergized (Close).
3. Press RETURN when complete. Turn 3 phase power to generator ON.

6.10 PS1 (PS2) SETTING

1. Enter the Service Mode and select ADJUSTMENTS. When in ADJUSTMENTS menu, select DOOR PRESSURE SETTING.
2. Install a calibrated pressure gauge in the test port adjacent to the door seal pressure switch to be adjusted.
3. Close sterilizer door(s).
4. With the DOOR PRESSURE SETTING screen on the display, press START TEST and the control will activate S35 and S36 valves ON / OFF at the switch setting. If double door unit, both valves will be cycling at the pressure setting for the respective valve.
5. Adjust the switch so the valve cycles at 10 psig.

6.11 TEMPERATURE CALIBRATION

Refer to the Service Mode section of this manual for a detailed explanation of temperature calibration. For Health Care sterilizers use the Steam calibration method. For Scientific units use the Oil Bath calibration method, where required; otherwise the Steam method may be used.

6.12 PRESSURE CALIBRATION

Refer to the Service Mode section of this manual for a detailed description of pressure calibration. For Health Care units use the Steam calibration method. For Scientific sterilizers use the External method, where required; otherwise the Steam method may be used.

6.13 SAFETY VALVE TEST AND REGULATOR SETTING

Refer to the Service Mode section of this manual for a detailed description of the safety valve test and steam pressure regulator adjustment.

6.14 LEAK TEST

(Also refer to cycle chart in Section 2 of this manual)

NOTE: S-7 solenoid valve is used to control the waste water temperature below 140°F. S-7 will turn on any time it is necessary to cool the waste temperature.

1. With the display showing the Main Menu, press the LEAK TEST button.
2. Connect absolute gauge to chamber. Keep ball valve closed at this time. Close door(s) if necessary.
3. JACKET / GENERATOR CHARGE – S9 will pulse until the jacket has charged and stabilized. If configured for a steam generator, the jacket will stabilize for 3 minutes after charging. “CHARGING GENERATOR” will be displayed instead of “CHARGING JACKET” if the jacket was up to temperature when the cycle was started.
4. ACTIVATE SEAL(S) – S35 (36) will pulse, S37 (38) will be on when S35 (36) pulses. When the pressure behind the seal reaches 10 psig and after a 10

second delay, the cycle will advance to the Purge phase.

5. PURGE – S2, S3, S4, S9 and S35 (36) will be on.
6. VACUUM PULSE – S2 turns off. After 4 psig is reached, S4 will turn off and S-7 will turn on.

   S9 will open and close intermittently while controlling the jacket temperature.

   A vacuum will be pulled on the chamber for 1 minute (and 10 inHg is reached) after 3 psig is reached.
7. PRESSURE PULSE – S3 turns off. S2, S9 and S35 (36) will be on.

   Wait until the pressure reaches 26 psig. Step 3 will repeat.
8. CHARGE – S3 and will go off. S2, S9 and S35 (36) will be on.

   Verify that chamber is charging with steam and will charge until 270.1°F is reached.
9. LEAK TEST EVACUATING – S2 will turn off. S3, S4, S35 (36) will be on until 3 psig is reached. Then S4 turns off and S-7 turns on.

   S9 will open and close intermittently while controlling the jacket temperature.

   Wait for 10 minutes.

NOTE: *If 20 inHg is not reached in 10 minutes, the Leak Test is aborted because of insufficient vacuum. The leak must be located and repaired and Leak Test repeated.*

   After 10 minutes, open the ball valve to the absolute gauge. The chamber must be at 60 mmHg or deeper (lower number). If this value is not reached, correct leaks and rerun test.
10. LEAK TEST STABILIZING – S3 and S7 will then turn off. The chamber will stabilize for 2 minutes before starting the leak test count down.
11. LEAK TEST – S9 will open and close intermittently while controlling the jacket temperature.

    S7 may open and close intermittently while controlling the temperature of the waste water.

    The sterilizer will time for 10 minutes. At the end of 10 minutes S1 will turn on.
12. AIR BREAK – S1, S35 (36) will be on.

    S7 may open and close intermittently while controlling the temperature of the waste water.
13. RETRACT SEAL(S) – S35 (36) will turn off. S7, S37 (38) will turn on. After the seal pressure switch opens (less than 10 psig), the vacuum will be pulled for an additional 15 seconds.
14. COMPLETE – S37 (38) will be ON; S-9 will maintain jacket temperature at approximately 270°F; all others will be OFF. A summary of the values attained during the cycle will be printed.

    Open the door(s) and remove the absolute gauge from the chamber.

The maximum leak rate allowed is 1.0 mmHg per minute. If the leak rate is greater, the leak must be located and repaired and the Leak Test repeated.

```
========================
=== L E A K  T E S T ===
========================
CYCLE START AT  1:09:07P
             ON  7/24/93
16 x 16 x 26
SINGLE POWER DOOR
VACAMATIC
DIRECT STEAM
S/N 0130193-01


                    V=inHg
- TIME       T=F  P=psig
-------------------------
C  1:09:07P  180.5    0P
C  1:10:08P  232.0    9P
C  1:11:20P  182.8   22V
C  1:12:08P  263.2   26P
C  1:13:34P  175.3   25V
L  1:15:47P  270.1   29P
L  1:30:46P  144.6   28V
L  1:32:47P  153.5   28V
L  1:42:46P  146.0   28V
LEAK RATE IS:
        0.1     mmHg/min

L  1:42:48P  146.0   28V
Z  1:44:11P  148.8    1V

TOTAL CYCLE = 0:35:04
========================
```

Figure 6-1. Typical Leak Test Cycle Tape

Section 7: Steam Generator Maintenance

7.1 STEAM GENERATOR

Maintenance to the steam generator includes cleaning, descaling, and adjustment of pressure switches. It is imperative that the customer follow a daily flush procedure as outlined in the Routine Maintenance manual (P-129367-410). Units equipped with automatic flush and drain (not supplied on early production units, and as of this writing may be standard or optional on later production units), will perform this function on daily start-up. Failure to follow daily flushing of the generator will result in less effective operation and possible early failure of heating elements. Failure of heater elements due to improper maintenance is not covered by STERIS warranty.

⚠ Failure to flush generator daily could result in malfunction of the generator. Warranty on the generator will be voided unless flushed daily.

- These cleaning and descaling procedures should be performed every 2 to 3 months until the rate of scale formation is determined. Then schedule the cleaning and descaling as required to maintain proper operation.

7.1.1 Heating Element/Boiler Chamber/ Probe Cleaning

1. Allow the generator to cool and drain completely. Turn off the 3 PH and 1 PH power source from the generator at the wall disconnect box. Follow lock out/tag out procedures.
2. Carefully tag each lead on the heating element terminals of the first element so they can be returned to the original terminals later.
3. Remove the leads from the heating element of the first element.

***NOTE**: Do not remove the strapping bars from the heating element terminals.*

4. Remove the bolts/nuts which secure the heating element to the boiler and carefully slide the heating element out of the boiler.
5. Clean the heating element and the inside of the boiler chamber with a wire brush to remove the heavy mineral deposits and scale.
6. Reinstall the heating element with a new heating element gasket in the boiler chamber. Alternately tighten the mounting bolts/nuts as indicated on the instructions supplied with the gasket.
7. Reconnect the leads to the heating element terminals.
8. Tag each lead on the control electrode(s) so they can be returned to the original terminals later.
9. Remove the leads from the electrodes.
10. Remove the electrode(s) and clean with a wire brush or sandpaper.
11. Reinstall electrode(s) and electrode lead(s) assuring that each lead is reconnected to the correct electrode.
13. Reconnect 3 PH and 1 PH power source.

7.1.2 Steam Chamber Descaling/Flush Out

Use STERIS Descaler P-764315-722.

1. Remove heater element as described in section above and remove heavy scale buildup from inside of boiler and heater element. Note approximate amount of overall scale buildup. If scale buildup is substantial, this indicates a need for more frequent descaling or improvements in feedwater quality. If scale formation is minimal, less frequent descaling is required.
2. For generators **with** Automatic Flush and Drain:
   a. Start the generator in the normal way to flush out loose sediment.
   b. Immediately after flushing, when generator fills to its proper operating level, close the manual drain valve located between the generator and the motorized ball valve. It is necessary to close this valve to prevent the unit from flushing out the descaler solution when the generator is turned ON again.
3. For generators **without** Automatic Flush and Drain:
   a. OPEN generator manual drain valve and start generator in normal way to flush out loose sediment.
   b. After approximately 5 minutes, CLOSE generator manual drain valve.
   c. When generator fills to its proper operating level, turn generator OFF.

⚠ WARNING! PERSONAL INJURY HAZARD: Area must be properly vented to prevent buildup of fumes. Wear eye protection and gloves when pouring Descaler into unit.

4. Make sure the generator is cool and remove the pipe plug in the steam outlet discharge line or the safety valve.
5. Insert funnel into opening and very slowly pour in 2 pints of STERIS Descaler (P-764315-722).
6. Reinstall pipe plug or safety valve.
7. CLOSE steam outlet valve and allow the descaler solution to remain in the generator for 60 minutes (1 hr.).
8. Turn generator ON until 5 PSIG steam pressure shows on generator pressure gauge.
9. Turn generator OFF and let stand for at least 1/2 hour or until generator pressure gauge shows 0 PSIG.
10. For units **with** Automatic Flush and Drain:
    a. Open drain valve between generator and motorized ball valve.
    b. Turn generator ON in the normal way and allow generator to flush for the preset period of time, at which time generator will refill to normal operating level.
    c. Turn generator OFF.
11. For units **without** Automatic Flush and Drain:
    a. OPEN generator drain valve.
    b. Turn generator ON in the normal way and allow to flush for 5 minutes.
    c. CLOSE generator drain valve and allow to refill to normal operating level.
    d. Turn generator OFF.
12. Repeat either step 10 (for units with Automatic Flush and Drain) or step 11 (for units without Automatic Flush and Drain) a total of *two* more times.
13. Generator is now ready for normal use and operation.

7.2 PRESSURE SWITCH ADJUSTMENTS

7.2.1 Adjustable Components

1. **Operating Pressure Switch** (located on generator) - This switch sets the operating pressure of the generator. Normal setting is 80 psig. The switch also has a settable differential, which is set at 10 psig. With these settings, the generator will normally run between 70 and 80 psig.
2. **High limit Pressure Switch** (located on generator) - This switch limits the pressure in the generator to approximately 10 psig below the vessel rating (the vessel rating is 100 psig, so the limit switch would be set at 90). The limit switch does not have a differential setting. Under normal conditions this switch is never actuated. The switch has a manual reset button requiring a serviceman to reset the switch, it indicates a fault in the generator.

7.2.2 Pressure Switch Adjustments

1. Install calibrated pressure gauge on the generator.
2. Adjust limit pressure switch to 90 psig.
3. Set operating pressure switch to 95 psig.

NOTE: *This is for test purposes only, this is not a final setting.*

4. Turn generator ON and allow to heat up. The generator will try to operate at 95 psig, however, the limit switch should turn the unit off at 90 psig. If the pressure is other than 90 psig, it will be necessary to reduce pressure in the generator (either by slightly opening the blowdown valve, or running a cycle in the sterilizer), resetting the manual reset switch, resetting the limit switch set point and rerunning the test. Once the limit switch is set properly, readjust the operating switch to 80 psig setting.
5. Confirm the operating limit switch setting by running multiple sterilizer cycles and observing at which pressure the heater contactors are activated and deactivated. Adjust the operating switch setting and the differential setting so that the heater contactors are deactivated at 80 psig, and activated at 70 psig.

Section 8: Maintenance Procedures

8.1 DOOR

8.1.1 Removal Procedure

1. Open front access door.
2. Remove door cover with 3/8" open end wrench.
3. On power door units, disconnect the cable attached to the bottom of the door.
4. Place a block approximately 1/2" high under the door counterweight, such that when the door is placed in the full up position there is some slack in the counterweight cables.
5. Locate door lock pins and "install both in door with door in full up position. With the spacer under the counterweight some additional effort will be needed to raise the door.

WARNING! PERSONAL INJURY HAZARD: The sterilizer door weighs approximately 35 lbs (16"), or 70 lbs (20"). Always use care when removing the door. Two service persons should be present when removing a 20" door.

6. Remove the screws attaching the counterweight cables to the door bracket. With a pencil, mark screw locations.
7. Using a 3/4" open end wrench, remove the two door guide tubes.
8. Support door and remove the door lock pins with the other hand. The door can now be lowered. Once lowered past the bottom of the end frame, the door can be removed.

8.1.2 Inspection

The door is made of a formed plate of stainless steel. The only components that may exhibit wear are the (12) fiber-tipped guide screws and the (1) milled, half moon shaped door lock screw. The fiber-tipped screws are used to center and guide the door during its up and down travel and may show wear. Inspect each screw, those showing excessive wear should be replaced.

8.1.3 Door System Adjustments (16" and 20", Power and Manual Doors)

Before attempting door system adjustments, verify that the chamber is leveled and at the correct height.

- In addition, it is assumed that the stand is square and undamaged. If the sterilizer has a damaged stand it may be impossible to adjust the door system properly.

8.2 DOOR GUIDE

Refer to Figure 8-1. This figure shows the door from a top, front, and bottom view with the door cover removed. 12 adjustment screws are used to properly position the door. Each screw has a nylon tip to allow the door to slide properly. Prior to adjusting, visually inspect each screw to verify that the nylon tip is intact. Replace any screws missing its nylon tip.

Remove door cover and adjust as follows:

1. Front screws — top left and right (designated “A” on Figure 8-1)
   - Loosen the locknut and back the screw out. Then adjust the screw back in so the tip is flush with the inner door surface. Using a flat surface, as shown on Figure 8-2 is beneficial in adjusting the screw flush. Once screws are flush, turn clockwise two additional turns and

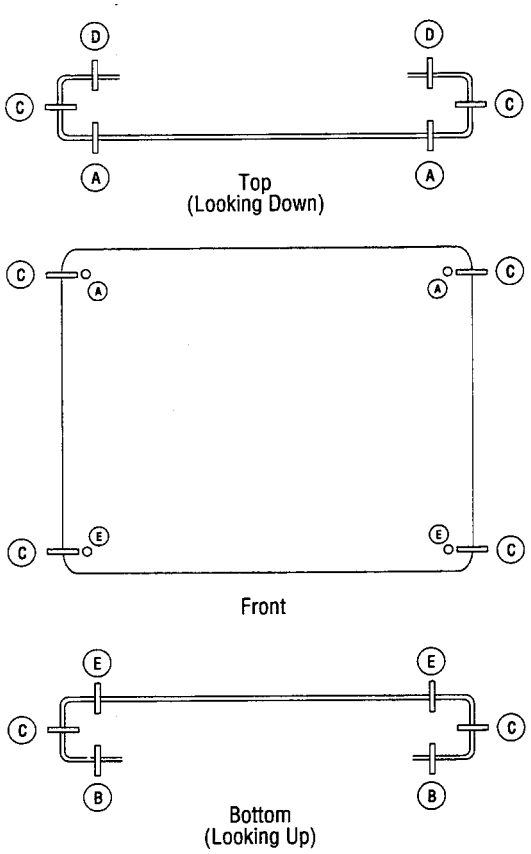


Figure 8-1. Door Guide Adjustment

tighten lockwasher.

2. Rear screws — bottom left and right (designated "B" on Figure 8-1)
   - Loosen the locknut and back the screw out. Then adjust the screw back in so the tip is flush with the inner door surface. Using a flat surface, as shown on Figure 8-2, is beneficial in adjusting the screw flush. Once screws are flush, turn clockwise two additional turns and tighten lockwasher.
3. Side screws — right and left, top and bottom (designated "C" on Figure 8-1)
   - Pin door to endframe.
   - Loosen the locknuts and adjust all four side screws until they just make contact with the endframe or door guide bars; then back the right-hand screws out 3/4 turn. Tighten locknuts.
4. Rear screws — top left and right (designated "D" on Figure 8-1)
   - With door down about 1", loosen locknuts and adjust screws in until they make contact; then back out 1/4 turn. Tighten locknuts.
5. Front screws — bottom left and right (designated "E" on Figure 8-1)
   - With door down about 1", loosen locknuts and adjust screws until they make contact; then back out 1-1/2 turns.

8.2.1 Counterweight Guides

The counterweight guides are the 1/4" rods that the counterweight is guided by when moving up and down. The importance of this adjustment is to assure smooth motion of the counterweight and prevent counterweight from binding in place.

Refer to Figure 8-3. Adjust as follows:

1. Position door about 1/2" down from full up position, so that counterweight is suspended above down stops.
2. Loosen both counterweight guide brackets. The mounting bolts are located just behind the side-to-side brace of the stand.
3. Position the right-hand guide bracket so that the rod is within the free-hanging counterweight's bearing, or just touching its edge.
4. Tighten the bracket and recheck rod location in bearing.
5. Repeat for the left-hand guide bracket.
6. Run the door up and down to verify that the

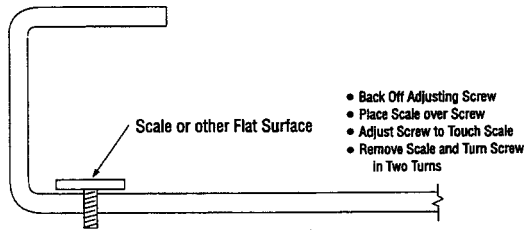

Scale or other Flat Surface
• Back Off Adjusting Screw
• Place Scale over Screw
• Adjust Screw to Touch Scale
• Remove Scale and Turn Screw in Two Turns

Figure 8-2. Flush Screw with Flat Surface

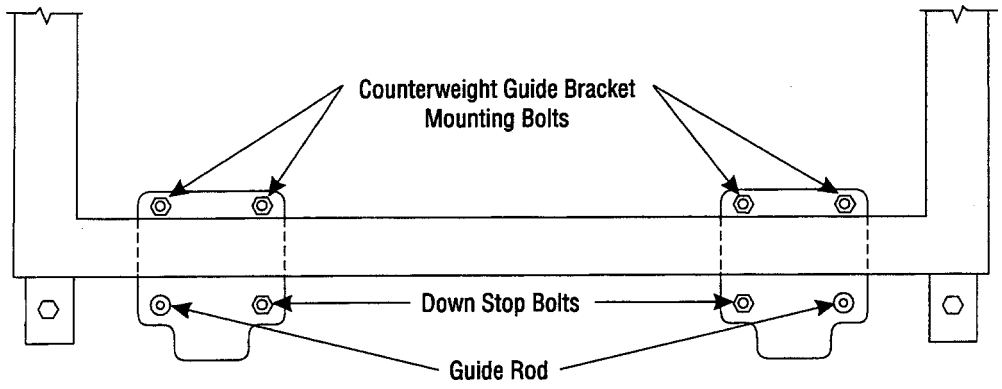


Figure 8-3. Adjust Counterweight Guides

counterweight rides freely on the guide rods.

8.2.2 Counterweight Cable Length Adjustment

This adjustment verifies that the two counterweight cables are equally adjusted.

Two small 2" x 2" blocks, 1/2" thick, are needed for this procedure. Plywood or a stack of thin metal shims may be used. Refer to Figure 8-4.

1. Remove door cover.
2. Place 1/2" blocks on each counterweight guide rod bracket and raise the door to lower the counterweight onto the blocks. Verify that the weight rests on the 1/2" blocks. If the weight rests on the door stop bolts instead, lower the door stop bolts.
3. Raise the door enough to insert the door pins, and pin door to endframe.
4. Adjust the counterbalance cables until the door pins slide in and out without difficulty.

After cable adjustment, it is necessary to adjust the COUNTERWEIGHT HARD DOWN STOP.

8.2.3 Counterweight Hard Down Stop

This adjustment is for limiting the downward travel of the counterweight.

Power Door

Adjust top of stop screw 1/2" from the top of the counterweight guide rod bracket.

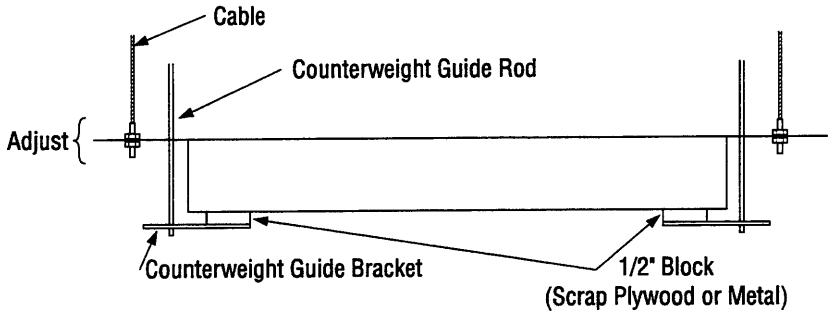


Figure 8-4. Adjust Counterweight Cable Length

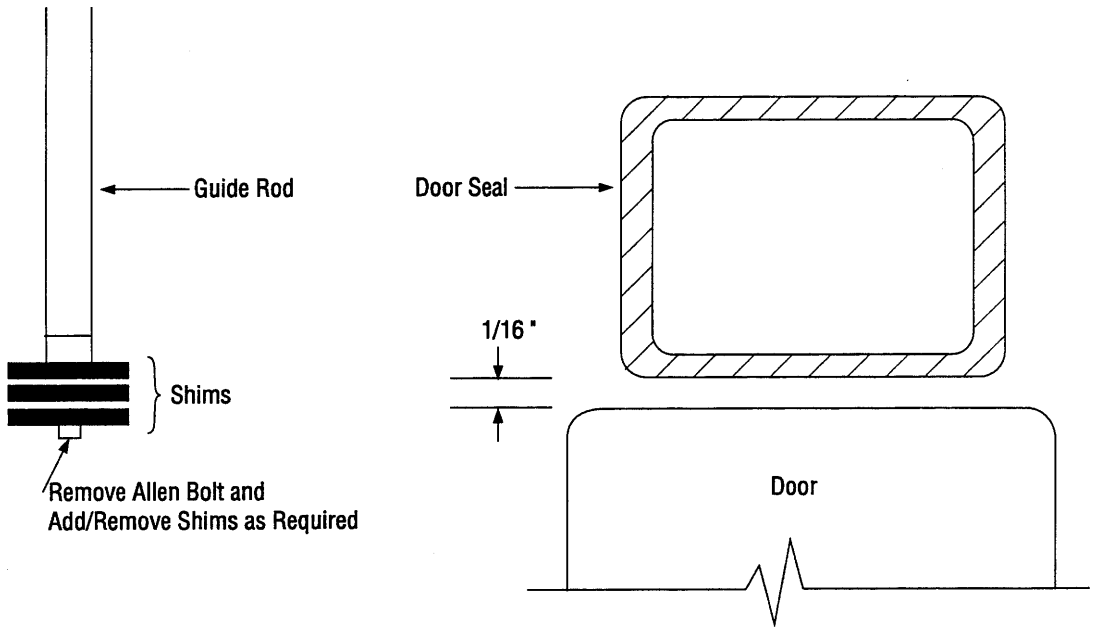


Figure 8-5. Adjust Door Down Stop

Manual Door

1. Remove bottom kick plate for access.
2. Adjust down stop bolts as low as possible.
3. Raise door to full up position.
4. Adjust stop screw out until it contacts the counterweight; then 1-1/2 turns more.

8.2.4 Door Down Stop

This adjustment is for setting the proper door down position. Refer to Figure 8-5.

1. Run door all the way down.
2. Measure distance between top of door and bottom of door seal groove. The specified dimension for this gap is 1/16".
3. Add or remove shims as required to achieve this 1/16" dimension.

8.2.5 Counterweight Soft Stops

Manual Door Units Only

Soft stops are pads used only on manual door units to dampen noise and absorb excess motion when the door is opened or closed. This procedure determines the placement of the pads.

1. Counterweight down soft stop — no adjustment required. Mount the pads on counterweight bottom surface so that they make contact with the counterweight guide bracket when the door is fully closed.
2. Counterweight up soft stop —
   - Position door against door down stop.
   - Adjust each counterweight up stop bracket for 1/8" gap between up stop bracket and counterweight. These two brackets are located on the stand adjacent to the counterweight guide rods.

- Mount pads on up stop bracket.

8.2.6 Door Balancing

This procedure verifies that the counterweight has the proper amount of trim weights to allow for correct up and down door movement. Trim weights are located on the bottom and front of the 16" sterilizer counterweight, and on the bottom and top left of a 20" sterilizer counterweight.

To properly set trim weights, the door must be fully assembled (door cover on), and the door guides must be properly adjusted per the procedures above.

The units are factory shipped with trim weights installed as shown in Table 8-1.

Table 8-1.

Unit Size	Trim Weight Location	Stack Thickness (max.)
16"	bottom	7/8"
16"	front	5/16"
20"	bottom	3/4"
20"	top left	2"

Power Door

1. Loosen door drive turnbuckle and disengage cable from drive pulley. This is necessary to eliminate any friction from the drive mechanism.
2. Add or remove trim weights until door and counterweight are balanced; that is, the door drifts neither up or down.
3. Reinstall door drive cable and adjust as found in DOOR DRIVE ADJUSTMENT procedure.

Manual Door

1. Add or remove trim weights so that door down time is between 5 and 8 seconds for the 16" and 6 and 10 seconds for the 20".

8.2.7 Door Drive Adjustment

Power Door Units Only

This procedure adjusts tension on the power motor drive cable so that slippage will occur at a specified resistance force. If slippage is too great, the door may take too long to raise up. If slippage is not enough the door may close with too much force.

NOTE: *The door cover must be in place for correct adjustment.*

1. Ensure all drive components are in place.
2. Adjust motor sheave (pulley) so that it lines up with cable routing.
3. Starting with a loose cable, tighten drive cable with turnbuckle so force to prevent door from moving up is between 5 and 7 pounds. This can be measured by use of a spring scale, or by hanging 5 to 7 pounds of weights on the door. At this point the motor still drives the pulley, but the cable slips, and the door should not raise.
4. Cycle several times to insure function and recheck stall.

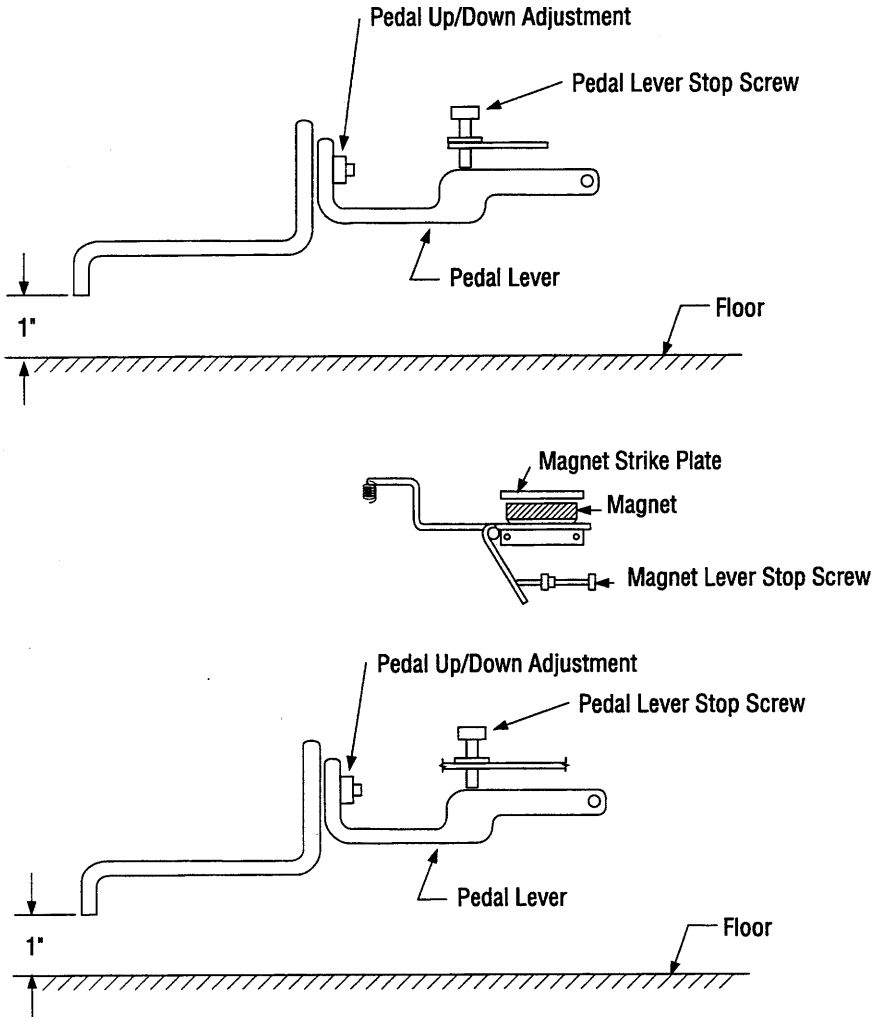


Figure 8-6. Door Foot Pedal Adjustment

8.2.8 Foot Pedal

This procedure adjusts the proper height of the foot pedal from the floor, and ensures the door actuation mechanism operates properly. See Figure 8-6.

Power Door

1. Adjust the pedal lever up stop screw so that the pedal lever is horizontal.
2. Adjust the pedal so that its lower surface is 1" from floor.
3. Adjust the proximity sensor so that it is 1/32" from the actuating bracket.

Manual Door

1. Adjust the pedal lever up stop screw so the pedal lever is horizontal.
2. Adjust the pedal so its lower surface is 1" from floor.
3. Adjust the magnet lever up stop screw so magnet is horizontal.
4. With door pinned, adjust magnet strike plate so it is in full contact with magnet. The magnet striker plate is bolted to the counterweight. Readjust magnet lever if required.
5. Adjust the pedal cable guide so cable is almost taut.

8.2.9 Door Up Sensor

1. Ensure door sensor target and sensor bracket are in place.
2. Position door in normal up position.
3. Adjust sensor on bracket with nuts downward toward target face until sensor LED just turns on. Adjust downward an additional 1-1/2 nut turns.
4. Activate door to ensure proper operation.
5. Pull door out and down to engage low pressure lock. The low pressure lock consists of two milled stainless steel screws that overlap when the door seal is activated. Verify that the low pressure lock screws are tight, and flat with respect to each other. See Figure 8-7.
6. Loctite sensor nuts in position.

NOTE: *On 16-inch units it is possible that when the door is in the full up position, and door seal is not pressurized, that the door may pivot forward, causing the Door Pressure Lock to partially engage. Partial engagement of this assembly may cause "Door Open Alarms".*

Normally the door pivots backward in the full up position, allowing the pressure lock to remain unengaged. If the problem described is occurring, it may be necessary to reposition where the counterweight cable attaches to the door. Refer to Figure 8-8.

8.2.10 Vapor Removal Solenoid Assembly

1. Position door at full up position.
2. Adjust solenoid bracket so the vertical height of the solenoid pin is just on the vertical flat of the door up sensor target.

3 With the door held out away from endframe and the solenoid pin full out (as if energized), adjust the solenoid on the bracket so that the pin is 1/32" from the sensor target.

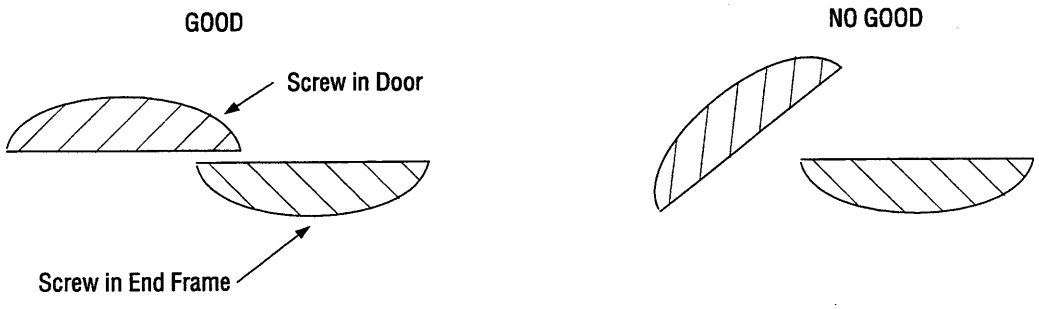


Figure 8-7. Correct Adjustment of Door Pressure Lock

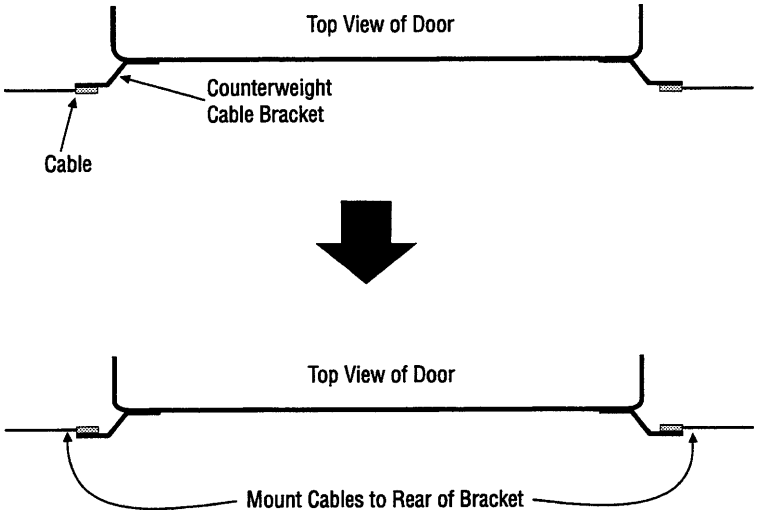


Figure 8-8. Reposition Counterweight Cables on Door

8.3 GENERAL NOTES

- Tighten locknuts where appropriate.
- When adjusting cable – hold cable with wrench so it won't twist.
- Remember, the top nut is the lock nut, the bottom nut is for adjustment.
- Always be on the lookout for interferences with door and counterweight hardware throughout their motion. This is usually an indication that the adjustments are not correct, or that the shell/stand/uprights/etc. are not properly positioned.

8.4 PIPING MANIFOLDS

The valves on the Century sterilizers are in manifold blocks, rather than separate valves as on other sterilizers. Due to the fact that there are several valves in one block, they can retain heat and take longer to cool down. When servicing the steam and exhaust manifolds use of insulated gloves may be required. Calling ahead to the customer to have utilities turned off is recommended where possible.

- Manifolds are so constructed that the lower halves of the valve bodies are the manifold body. Each valve has a replaceable stainless steel seat. Repair kits will contain the normal wear items in a valve; the seats are not included in the repair kit since the life of the stainless steel seat will be much longer than that of other items. Seats are available separately.
- It is recommended that each manifold be completely serviced at one time for maximum service with minimum downtime.

8.4.1 Servicing Piping Manifolds and Components

The sterilizer uses a Steam Manifold for steam supply, an Exhaust Manifold for drain piping, and a Water Manifold for the water supply. Double door sterilizers have additional valve assemblies separate from the manifolds to handle steam control for the non - operating end door seal.

Valves can be rebuilt without manifold removal. This is the preferred method of repair. Should the manifold ever have to be removed, procedures are supplied below. Repair/replacement of each manifold is discussed separately.

Tools required for repair are part of the standard STERIS serviceman's tool kit plus these additional items:

- 1 1/16" standard depth 1/2" drive Craftsman socket (P-764326-557)
- 1" combination box end–open end wrench (P-7644326-558)
- 3/8" Allen wrench (P-31354-091). This tool only required for work on early production units where a socket head pipe plug is used in the water manifold.

Refer to Figure 8-9 for location of Steam Manifold.

8.4.2 Steam Manifold

S2, S9

Service S2 and S9 valves, located in the Steam Manifold (refer to Figure 8-10).

1. Use 7/16" socket for removing bonnet.
2. Remove valve components.
3. Inspect seat, and replace if required. Use 1" socket for seat removal/installation.
4. Rebuild valve according to instructions in repair kit.

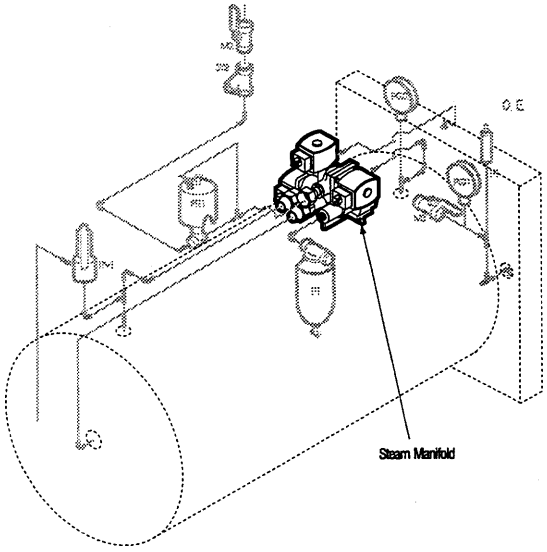


Figure 8-9. Location of Steam Manifold

S1

Service S1 valve, located in the Steam Manifold (refer to Figure 8-10).

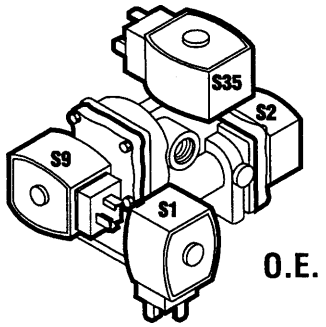


Figure 8-10. Steam Manifold (View from Operating End)

1. Use adjustable wrench to remove bonnet.
2. Remove valve components.
3. Inspect seat, and replace if necessary. Use 9/16" socket (1/2" drive) for seat removal/installation.
4. Rebuild valve according to instructions in repair kit.

S35

Service S35 valve, located in the Steam Manifold (refer to Figure 8-10).

1. Use adjustable wrench to remove bonnet.
2. Remove valve components.
3. Inspect seat, and replace if necessary. Use 7/16" socket (1/4" drive) for seat removal/installation.
4. Rebuild valve according to instructions in repair kit.

8.4.3 Exhaust Manifold

Refer to Figure 8-11 for location.

S40

Service S40 valve, located in the Exhaust Manifold (refer to Figure 8-11).

This valve is used for slow exhaust on liquids cycles. If the customer does not run liquids cycles, rebuilding of the valve may not be necessary; however an inspection of components is suggested.

1. Use adjustable wrench to remove bonnet.
2. Remove valve components.

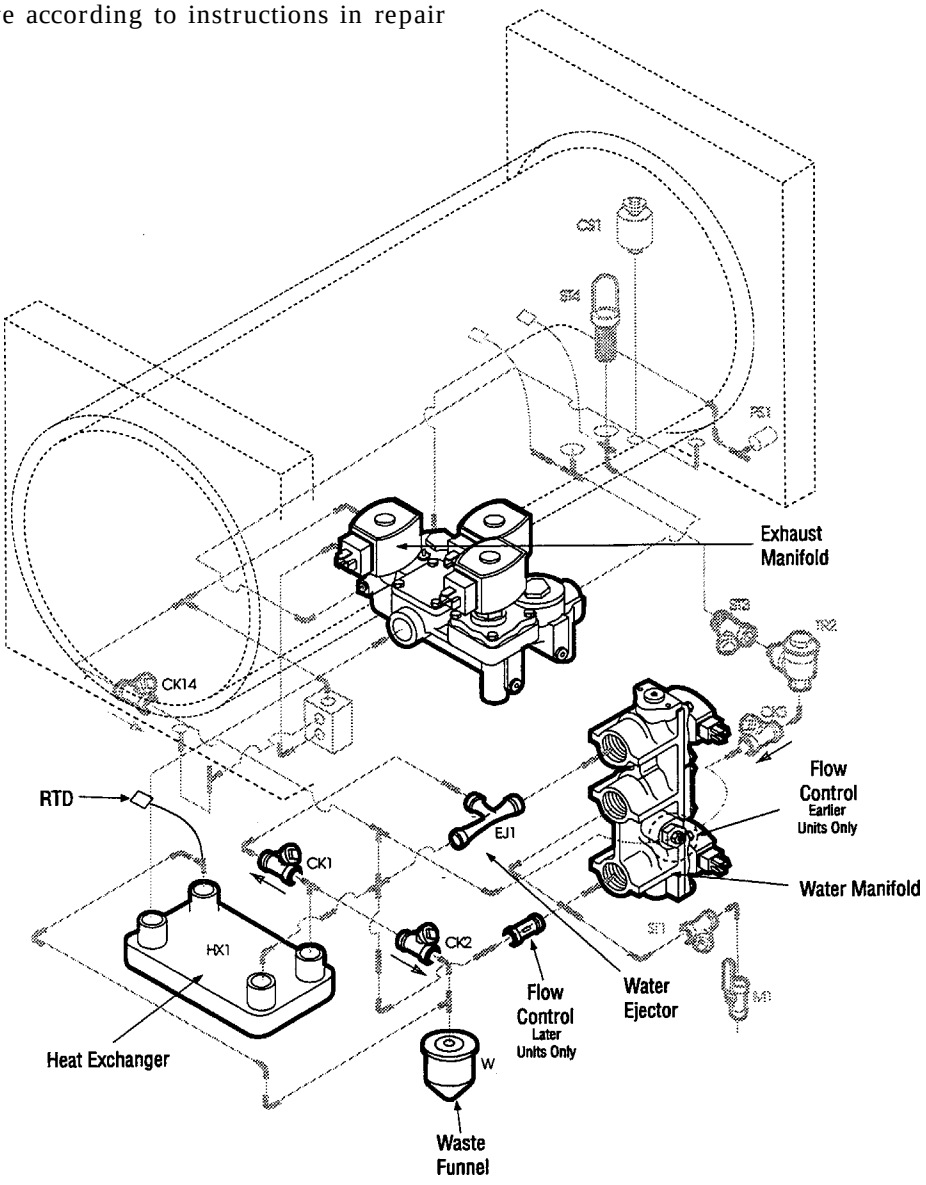


Figure 8-11. Location of Exhaust, Water Manifolds and Other Components

3. Inspect seat, and replace if necessary. Use 7/16" socket (1/4" drive) for seat removal/installation.
4. Rebuild valve according to instructions in repair kit.

S3

Service S3 valve, located in the Exhaust Manifold (refer to Figure 8-12).

1. Use 7/16" socket for bonnet removal.
2. Remove valve components.
3. Inspect seat, and replace if necessary. Use a 1" socket for seat removal/installation.
4. Rebuild valve according to instructions in repair kit.

CK8

Service CK8 check valve, located in the Exhaust Manifold (refer to Figure 8-12).

1. Use 7/17" socket for cover removal. Note that valve assembly is attached to cover.
2. Inspect seat, and replace if necessary. Use a 1" socket for seat removal/installation.
3. Rebuild valve according to instructions in repair kit.

NOTE: *Hinge is installed towards the rear of the manifold.*

S37

Service S37 valve and FC2 flow control valve, both located in the Exhaust Manifold (refer to Figure 8-12).

1. Access to this valve will require removal of FC2 flow control valve. The compression fitting located just in front of the valve may also require removal.
2. Remove bonnet of valve using a 1" box end wrench.
3. Remove valve components.
4. Inspect seat, and replace if necessary. Use a 7/16" socket for seat removal/installation.
5. Rebuild valve according to instructions in repair kit.
6. When reinstalling FC2 use new O-ring seal and adjust to 1/2 turn open.

8.4.4 Removal: Exhaust Manifold

(Refer to Figure 8-11).

1. Remove solenoid coils from valve bonnets. Ensure the coils and valve bodies are marked, allowing for quick assembly.
2. Disconnect union in front of manifold and a second union at the back of the manifold.
3. Disconnect the three compression fittings on the right side of the manifold.
4. Remove the mounting bolts located below the manifold.
5. Slide manifold out towards the front of the sterilizer.
6. Reassemble in reverse order.

8.4.5 Water Manifold

(Refer to Figure 8-11).

The water manifold assembly contains CK5 water inlet check valve, S7 water to ejector valve, S4 exhaust cooling valve, and the water ejector. Rebuilding of the valves can be done from the front of the sterilizer.

The water manifold should be drained prior to servicing. On early production units, use a 3/8" hex wrench and remove the plug at the bottom of the manifold. Later units use a standard pipe plug. Use a suitable container to catch approximately one pint of water that will drain from the manifold.

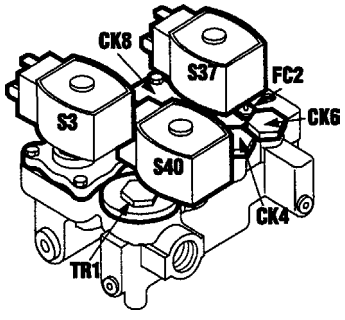


Figure 8-12. Exhaust Manifold (View from Operating End)

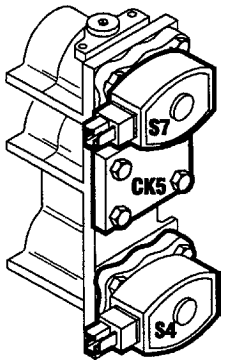


Figure 8-13. Water Manifold (View from Operating End)

CK5

Service CK5 check valve (refer to Figure 8-13).

1. Use 7/17" socket for cover removal. Note that valve assembly is attached to cover.
2. Inspect seat, and replace if necessary. Use a 1" socket for seat removal/installation.
3. Rebuild valve according to instructions in repair kit.

NOTE: Hinge is installed towards the top of the manifold.

S4, S7

Service S4 and S7 solenoid valve (refer to Figure 8-13).

NOTE: When S7 valve is disassembled, a visual inspection of the ejector is possible.

1. Use 7/16" socket for bonnet removal.
2. Remove valve components.
3. Inspect seat, and replace if necessary. Use a 1" socket for seat removal/installation.
4. Rebuild valve according to instructions in repair kit.

8.4.6 Removal: Water Manifold and Water Ejector Assembly

Refer to Figure 8-11 for location of Water Manifold and Water Ejector.

1. Remove S4 and S7 coils.
2. Disconnect the two compression fittings at the cross downstream of the ejector.
3. Disconnect and remove the tube between the heat exchanger and the ejector suction inlet.
4. Disconnect the union between the water supply hand valve and the water manifold.
5. Disconnect the union between the cross and the heat exchanger.
6. Remove the mounting bolts for the manifold and remove the manifold assembly.
7. Removal of the water ejector can now be done.
8. Reassemble in reverse order.

8.4.7 Removal: Heat Exchanger

Refer to Figure 8-12 for location.

1. Remove waste funnel.
2. Remove tube between water ejector suction port and heat exchanger.
3. Remove RTD at heat exchanger.
4. Disconnect union between cross and heat exchanger.
5. Disconnect union between exhaust manifold and heat exchanger.
6. Remove mounting bolts underneath heat exchanger.
7. Remove heat exchanger.
8. Reassemble in reverse order.

8.5 CONTROL COMPONENTS

Before disassembling or servicing a component — especially when working on a component with which you are not familiar — review the written procedure given in these sections. Reading and reviewing procedures minimizes potential problems and confusion while servicing an assembly.

CAUTION: Whenever handling electronic components, use of a grounding wrist strap is mandatory to prevent static discharge damage.

NOTE: Some plug connectors fit very tightly. It may be necessary to use a small flat blade screwdriver to assist in prying the connectors apart. As long as power is off, there will be no electronic damage done due to the shorting action of the blade across the pins.

SPECIAL TOOLS REQUIRED: P-764326-559 PLC chip remover.

8.5.1 CPU Board

Refer to Figure 8-15 for location of the main control assembly.

Remove or service the main CPU board.

1. Open front service access door.
2. Turn main power switch (refer to Figure 8-15) OFF.
3. Open control box cover.
4. Locate CPU board (in slot farthest to the right) and remove board.
5. Install new board taking note of proper dip switch and jumper settings reference section of this manual for proper settings.

NOTE: Replacement CPU boards are unprogrammed as shipped from STERIS. When replacing this board, ensure that the original program chips are transferred from the existing board; otherwise a new program chips must be installed.

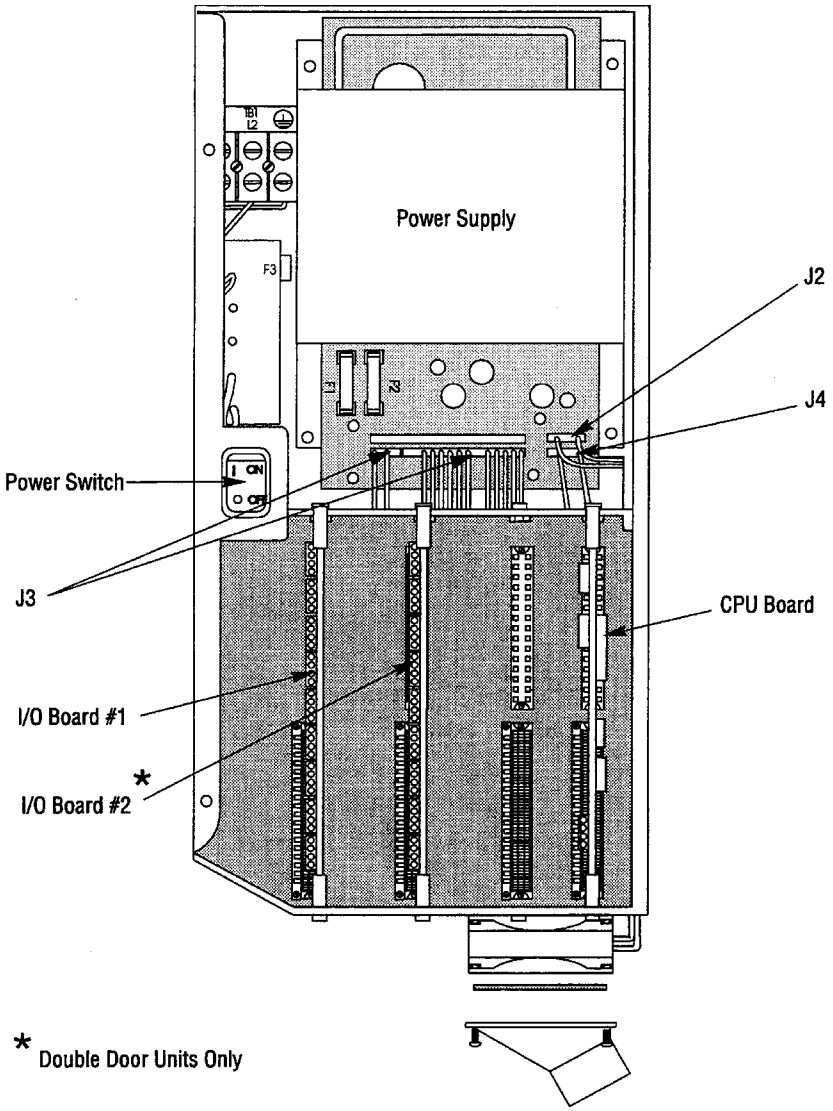


Figure 8-14. Control Components

8.5.2 Flash Memory Chips — U13, U16, U15 and U12

Remove and replace Flash Memory chips on CPU board (refer to Figure 8-14).

Tools necessary – Wrist strap and a chip puller device. A LPC puller is available from STERIS using part number P-764326-559.

Procedure _ The procedure involves entering the Service Mode and downloading the existing calibration data, installing the new flash chips and reloading the old calibration data.

The procedure for chip replacement is as follows:

1. Power up sterilizer control. Enter the service mode. The access code is the current year (e.g., 1999).
2. Press the "Calibration" selection button. Then select "Temp / Press Verification". Then select "Cal. Data Print". The printer will print the temperature and pressure calibration data currently in memory using the terms "Low Value", "Low Raw Data", etc. Save the printout for a later step.
3. Power down the sterilizer and, using a wrist strap, remove the CPU board. Look closely at the four flash chips on the board, U13, U16, U15, and U12.

NOTE: *on the edge of each chip there is a dot. This indicates the correct orientation of the chip in the socket. When the chip is removed you will see that the socket has an arrow which indicates the direction the dot on the chip is to be oriented.*

NOTE: *the chips on the original board may not be labeled in the same manner as the replacement chips, therefore you will have to look at the board to see which is U13, U16, U15, and U12.*

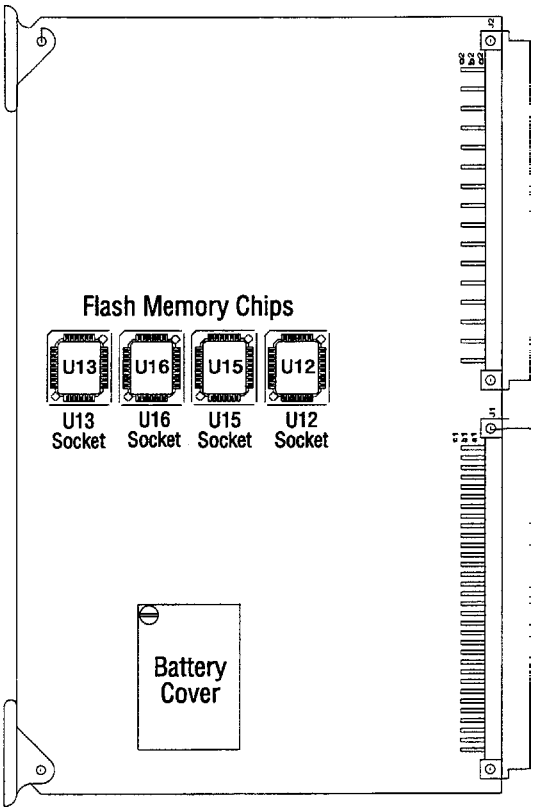


Figure 8-15. CPU Board

4. Using the chip puller, remove the existing chips and replace with the new chips, paying close attention to the correct positioning of the dot on the chip.
5. Reinstall the board in the sterilizer and power up the unit. The control will automatically burn-in the program.
6. Enter the service mode and enter the calibration section . Enter “Calibrate Temperature” and select “Load Values”. Enter the data that was printed out earlier. Repeat with “Calibrate Pressure” in the same manner.
7. Finally, it will be necessary to configure the control to match the sterilizer. Select “alarm/ Maintenance” on the Service Mode main menu. Then select “Configure Machine”. Then select “Set Configuration”.

Caution" Do not select “Load Program”. This is used only when downloading a new program using a PC. If “Load Program” is inadvertently selected, it will be necessary to power OFF/ON to clear the control.

Once in “Set Configuration”, select the configuration of the sterilizer.

8. Return to main menu and run a test cycle. The sterilizer can then be place back into service.

8.5.3 Battery

Remove the battery on CPU board.

1. Remove CPU board (refer to procedure described earlier).
2. Refer to Figure 8-15, and locate battery. Remove using a small blade screwdriver.
3. Install new battery.
4. Reinstall CPU board.

8.5.4 I/O Board

Refer to Figure 8-14 for location. Remove I/O board as follows.

1. Open front service access door.
2. Turn main power switch OFF.
3. Open control box cover.
4. I/O board #1 is in the slot farthest to the left; this is the only I/O board used in single door units; for double door units, I/O board #2 is in the *second* slot from the left. Locate the appropriate I/O board and remove.

5. Install new board taking note of proper dip switch settings. See reference section of this manual for proper settings.

8.5.5 U26 Chip

IMPORTANT: *This chip contains the system program and is* not *a service replacement component.*

8.5.6 Relays

Refer to Figure 8-16 for location of relays. Remove relays on I/O board (U5 - U12 and U16 - U21 are P-129361-870, U13 - U15 are P-129367-542).

1. Remove I/O board (refer to procedure described earlier).
2. Locate appropriate relay and remove using small flat-blade screwdriver.
3. Install new relay.
4. Reinstall I/O board.

8.5.7 Power Supply

Refer to Figure 8-14 for location. Remove the power supply.

1. Open front service access door.
2. Turn power switch OFF.
3. Open control box cover.
4. Disconnect connectors at J2, J3, and J4 at bottom of power supply.
5. Remove four nuts using a 1/4" nut driver. Use caution as dropping one of the nuts may cause it to become lodged in the connector board, requiring removal of the entire main control box.
6. Remove power supply/housing.
7. Using Phillips screwdriver, remove four screws and remove the power supply from the housing.

NOTE: *The power supply has two fuses, F1 and F2. These are not considered service replacement components. A failure of either fuse indicates a catastrophic internal failure in the power supply.*

8.5.8 Main Control Box

Remove the main control box as follows.

1. Open front service access door.
2. Turn power switch (see Figure 8-14) OFF.
3. Turn OFF 110 VAC electric service to unit.

IMPORTANT: *Lock out and tag out the electric service disconnect switch.*

4. Open control box cover.
5. Disconnect customer 110 VAC power located at upper left hand corner of box.

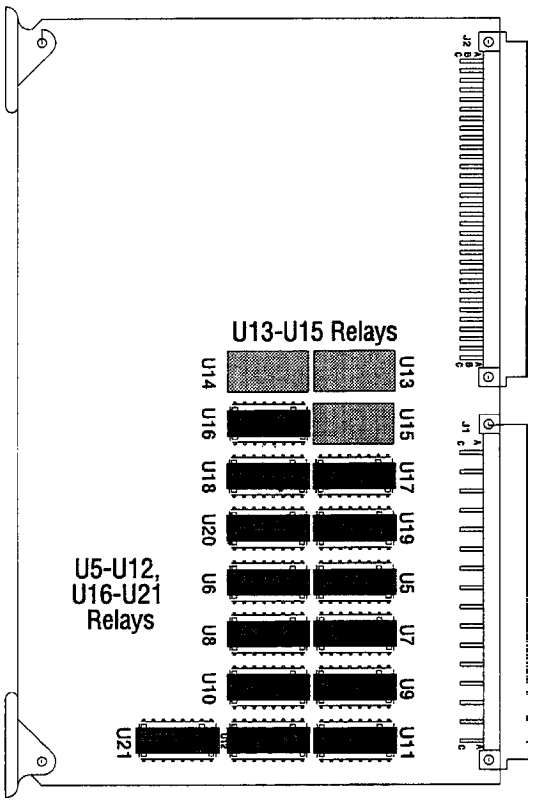


Figure 8-16. I/O Board

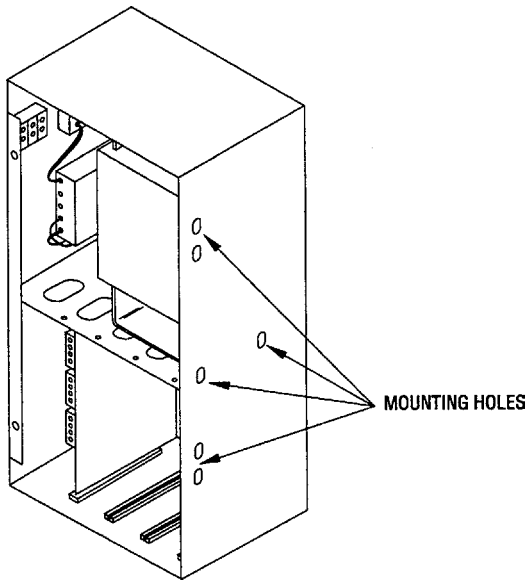


Figure 8-17. Main Control Box

6. Disconnect ventilation hose located at bottom of control box.
7. Disconnect *all* wiring harness plugs from the back of the control box. Refer to Figure 8-20.
8. Refer to Figure 8-17. Unbolt four 3/8" nuts and bolts that connect the two control box brackets to the sterilizer frame.
9. Support the control box and unbolt the remaining 3/8" bolt connecting the control box to the steam manifold support and remove the control box from the front.

8.5.9 Connector Board

Remove main control box connector board as follows.

1. Remove the main control box (refer to procedure described above).
2. Remove the power supply (refer to procedure described above).
3. Remove the CPU board (refer to procedure described above).
4. Remove the I/O board(s) (refer to procedure described above).
5. Remove the upper circuit board bracket (refer to Figure 8-19).
6. Remove the 1/4" and 3/16" screws around all of the connectors at the back of the control (Figure 8-19).
7. Slide connector board out slightly and disconnect P13 and P14 at back of board, and remove board.

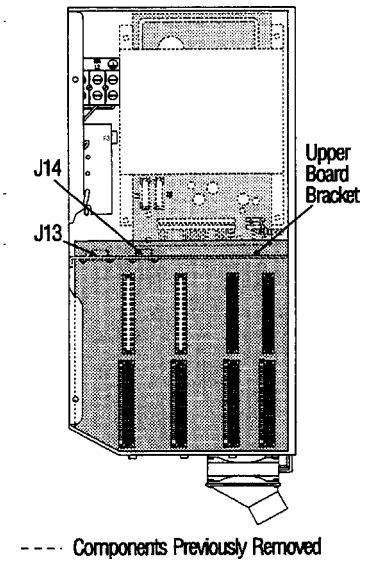


Figure 8-18. Main Control Box (Front View)

NOTE: *When reinstalling the upper circuit board bracket, do not tighten the screws until both boards are slipped in place. The brackets have a slot and have to be adjusted with boards in place.*

8.6 DISPLAY ASSEMBLY

Remove printer assembly P-93918-051 as follows.

1. Open front service access door.
2. Turn power switch (Figure 8-14) OFF.
3. Disconnect J10 and J1 from back of display control assembly.
4. Refer to Figure 8-20 and open the display door.

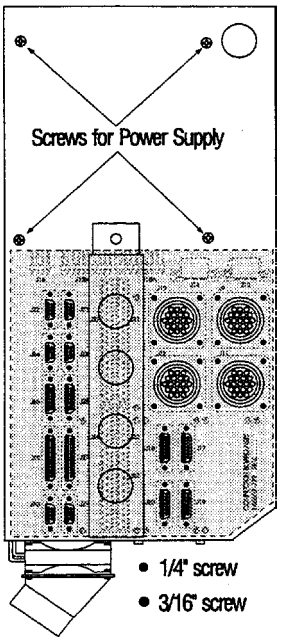


Figure 8-19. Main Control Box (Rear View)

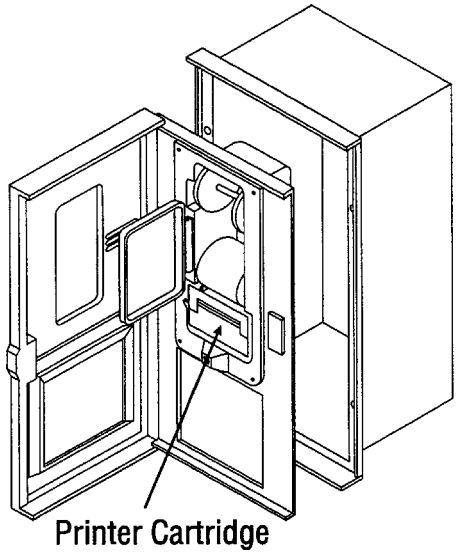


Figure 8-20. Display Housing

5. Remove paper take up spool and feed paper roll.
6. Remove printer ribbon cartridge.
7. Remove 3/64" socket head screws and swing out display access door.
8. Remove plug from back of printer.
9. On the printer remove top right-hand screw.
10. On the printer, loosen the two bottom screws (it is not necessary to remove them), and remove the printer.

8.6.1 Printer Board Assembly

Remove printer board assembly P-146656-182 as follows.

1. Open front service access door.
2. Turn power switch (Figure 8-14) OFF.
3. Disconnect J10 and J1 from back of display control assembly.
4. Remove 3/64" socket head screws and swing out display access door.
5. Disconnect J42 and J44 (Figure 8-21).
6. Remove four 1/4" nuts and remove board

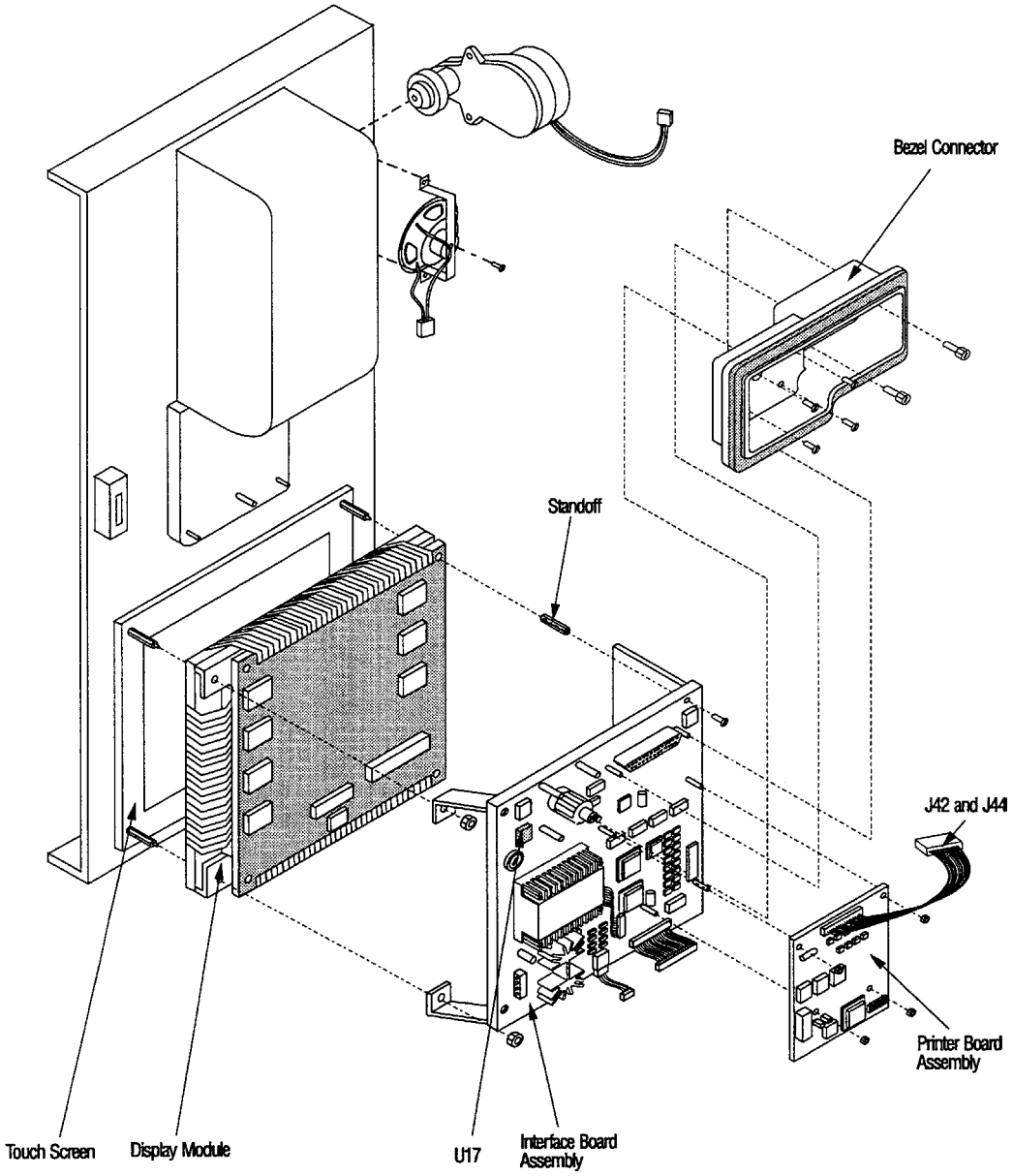


Figure 8-21. Display Assembly

7. When installing replacement board note the settings for dip SW1 and jumpers W1 and W2. Refer to the reference section of this manual for settings.

8.6.2 U8

This driver is present on the printer board; however, it is not used on the Century control.

8.6.3 Interface Board Assembly

Refer to Figure 8-21 for location. Remove interface board assembly P-146657-752.

1. Remove printer board P-146656-182 (refer to procedure described earlier).
2. Remove connector bezel P-146657-754.
3. Disconnect J2, J3, J4, J5, and J11 plugs.
4. Remove two 1/4" nuts on right side of board.
5. When removing the left side mounting hardware keep this in mind: The printer board brackets can remain on the printer board if the board is being removed for inspection or for access to the display module. In this case, remove the 1/4" nuts at the display module. If the board is to be replaced, then the brackets can remain on the display module, and the nut and screw can be removed from the interface board.
6. When reinstalling the interface board, note dip SW1 setting and jumpers JP1 and JP2. Refer to reference section of this manual for settings.

8.6.4 U17

Refer to Figure 8-21 for location. Remove U17 chip P-129360-770 on interface board.

1. Remove printer board P-146656-182 (refer to procedure described earlier).
2. Locate U17 chip and, using a small flat-blade screwdriver, remove the chip.
3. Install new U17 chip and reassemble.

8.6.5 Display Module

Refer to Figure 8-21. Remove display module P-136809-735 as follows.

1. Remove printer board P-146656-182 (refer to procedure described earlier).
2. Remove interface board P-146657-752 (refer to procedure described earlier).
3. Remove two standoffs on right side and remove module.

8.6.6 Touch Screen

Refer to Figure 8-21 for location. Remove Touch screen P-136809-701.

1. Remove printer board P-146656-182 (refer to procedure described earlier).
2. Remove interface board P-146657-752 (refer to procedure described earlier).
3. Remove display module P-136809-735 (refer to procedure described earlier).
4. Touch screen is held in place by an adhesive gasket. Do not remove unless the screen is to be replaced as it may be damaged on removal.

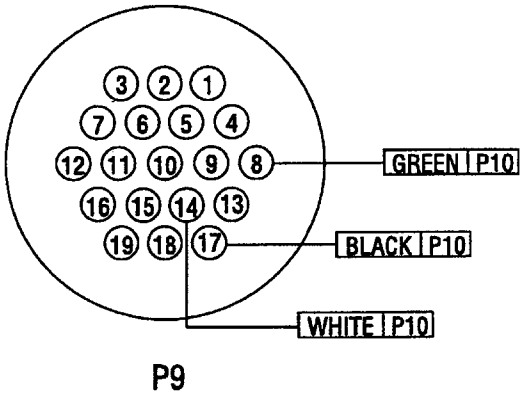
Section 9: Reference

Single Door Wire Harness Tabulation

COMPONENT	FROM	TO	REMARKS
S2 DIN	P11	S2	Solenoid Valve
S35 DIN	P11	S35	Solenoid Valve
S1 DIN	P11	S1	Solenoid Valve
S9 DIN	P11	S9	Solenoid Valve
AUS	P11	AUS	Auto Utility Shutdown (Steam Generator)
VRI	P11	VRI	Door ‘A’ Vapor Removal (Liquid Cycle)
S3 DIN	P10	S3	Solenoid Valve
S37 DIN	P10	S37	Solenoid Valve
Door Motor ‘A’	P10	DM ‘A’	Door Motor ‘A’
S40 DIN	P10	S40	Solenoid Valve
S4 DIN	P12	S4	Solenoid Valve
S7 DIN	P12	S7	Solenoid Valve
J10A	P9	P10A	Door ‘A’ Control Panel Ass’y
J100	P9	P100	J100 on Steam Generator
CS1	P19	CS1	Chamber Flood Switch
PS1	P19	PS1	Door ‘A’ Seal Pressure Switch
LS1	P18	LS1	Door ‘A’ Closed Switch
LS3	P18	LS3	Door ‘A’ Foot Pedal

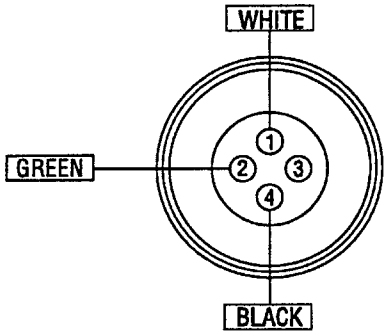
Double Door Wire Harness Tabulation

COMPONENT	FROM	TO	REMARKS
S2 DIN	P11	S2	Solenoid Valve
S35 DIN	P11	S35	Solenoid Valve
S1 DIN	P11	S1	Solenoid Valve
S9 DIN	P11	S9	Solenoid Valve
S36DIN	P11	S36	Solenoid Valve
AUS	P11	AUS	Auto Utility Shutdown (Steam Generator)
S3 DIN	P10	S3	Solenoid Valve
S37 DIN	P10	S37	Solenoid Valve
Door Motor ‘A’	P10	DM ‘A’	Door Motor ‘A’
S40 DIN	P10	S40	Solenoid Valve
S38 DIN	P10	S38	Solenoid Valve
S4 DIN	P12	S4	Solenoid Valve
S7 DIN	P12	S7	Solenoid Valve
VRI	P12	VRI	Door ‘A’ Vapor Removal (Liquid Cycle)
VR2	P12	VR2	Door ‘B’ Vapor Removal (Liquid Cycle)
Door Motor ‘B’	P12	DM ‘B’	Door Motor ‘B’
J10A	P9	P10A	Door ‘A’ Control Panel Ass’y
J100	P9	P100	J100 on Steam Generator
J10B	P9	P10B	Door ‘B’ Control Panel Ass’y
CS1	P19	CS1	Chamber Flood Switch
PS1	P19	PS1	Door ‘A’ Seal Pressure Switch
PS2	P19	PS2	Door ‘B’ Seal Pressure Switch
LS1	P18	LS1	Door ‘A’ Closed Switch
LS2	P18	LS2	Door ‘B’ Closed Switch
LS3	P18	LS3	Door ‘A’ Foot Pedal (Power Door)
LS4	P18	LS4	Door ‘B’ Foot Pedal (Power Door)



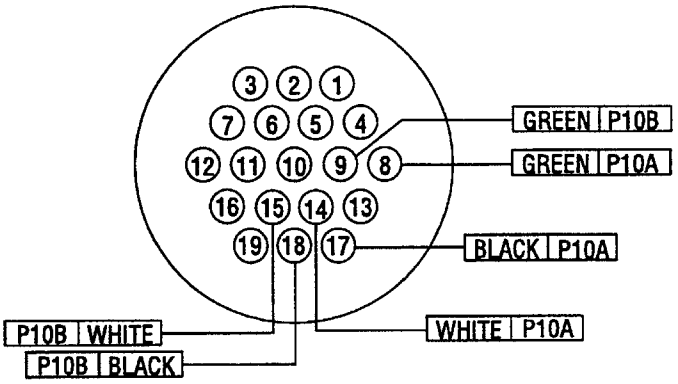
P9

WIRE CHART		
COLOR	FROM	TO
BLACK	P10A-4	P9-17
WHITE	P10A-1	P9-14
GREEN	P10A-2	P9-8

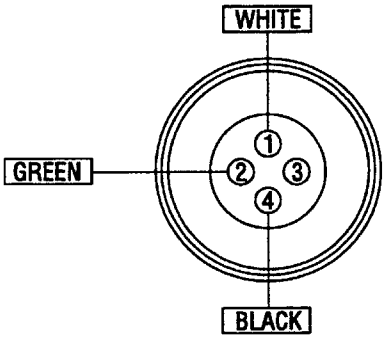


P10A

Cable Assembly — P9/P10A
1446657-774, Sheet 1 of 1

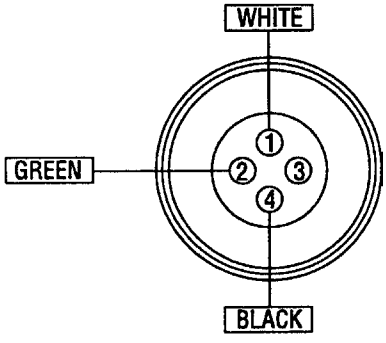


P9



P10A

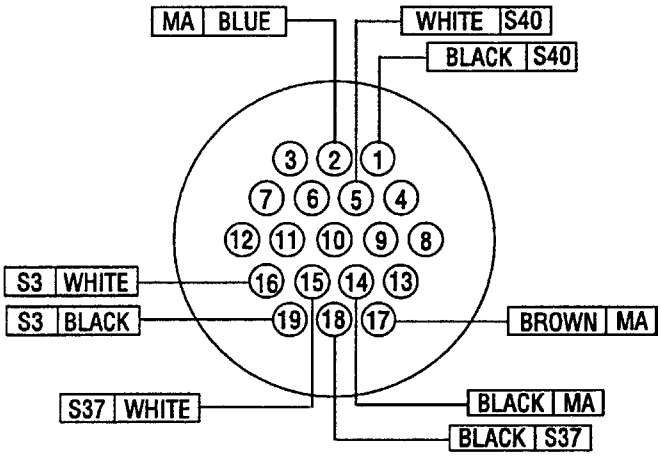
WIRE CHART		
COLOR	FROM	TO
BLACK	P10A-4	P9-17
WHITE	P10A-1	P9-14
GREEN	P10A-2	P9-8
BLACK	P10B-4	P9-18
WHITE	P10B-1	P9-15
GREEN	P10B-2	P9-9



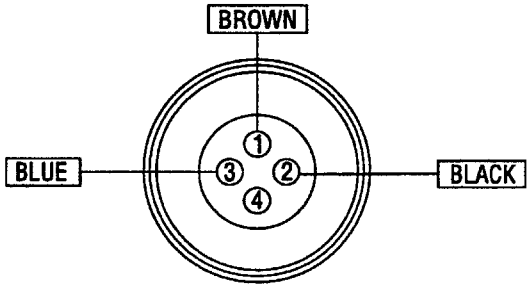
P10B

Cable Assembly — P9/P10A, P10B
1446657-854, Sheet 1 of 1

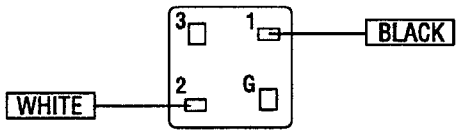
WIRE CHART		
COLOR	FROM	TO
BLACK	S3-1	P10-19
WHITE	S3-2	P10-16
BLACK	S37-1	P10-18
WHITE	S37-2	P10-15
BLACK	S40-1	P10-1
WHITE	S40-2	P10-5
BROWN	MA-1	P10-2
BLACK	MA-2	P10-14
BLUE	MA-3	P10-17



P10

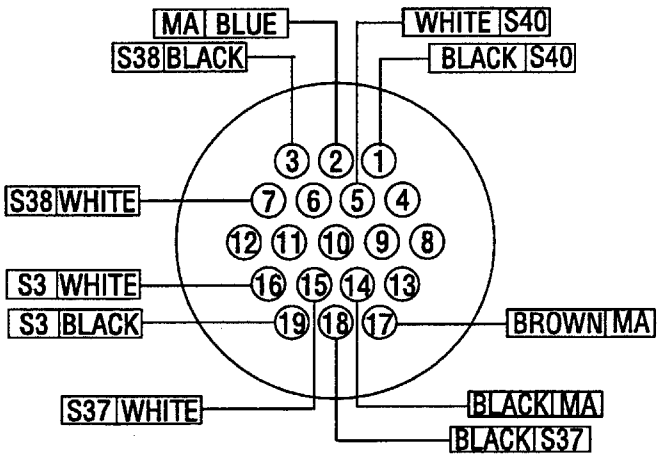


MA



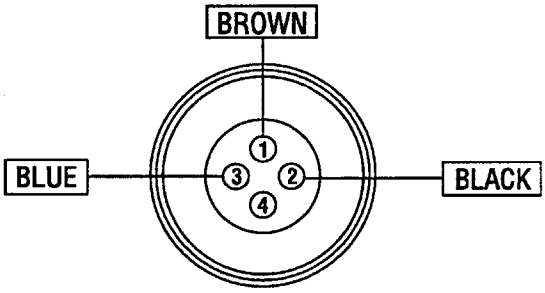
S3, S37, S40

Cable Assembly — P10/S3, S7
1446657-773, Sheet 1 of 1



P10

WIRE CHART		
COLOR	FROM	TO
BLACK	S3-1	P10-19
WHITE	S3-2	P10-16
BLACK	S37-1	P10-18
WHITE	S37-2	P10-15
BLACK	S38-1	P10-3
WHITE	S38-2	P10-7
BLACK	S40-1	P10-1
WHITE	S40-2	P10-5
BROWN	MA-1	P10-2
BLACK	MA-2	P10-14
BLUE	MA-3	P10-17



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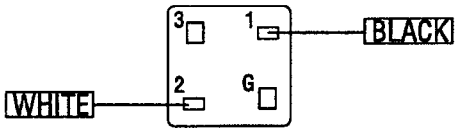
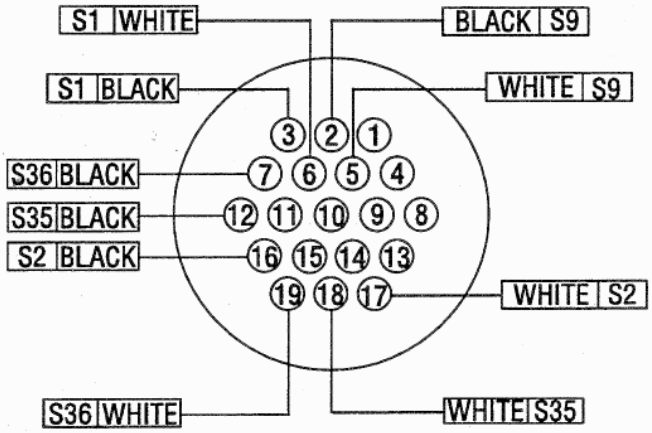


S3, S37, S38, S40

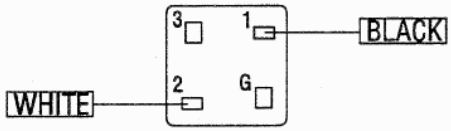
Cable Assembly — P10/S3, S37, S38

1446657-748, Sheet 1 of 1



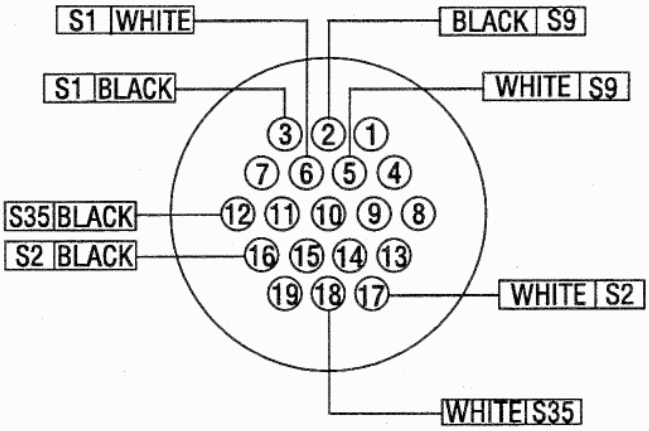
P11

WIRE CHART		
COLOR	FROM	TO
BLACK	S1-1	P11-3
WHITE	S1-2	P11-6
BLACK	S2-1	P11-16
WHITE	S2-2	P11-17
BLACK	S9-1	P11-2
WHITE	S9-2	P11-5
BLACK	S35-1	P11-12
WHITE	S35-2	P11-18
BLACK	S36-1	P11-7
WHITE	S36-2	P11-19



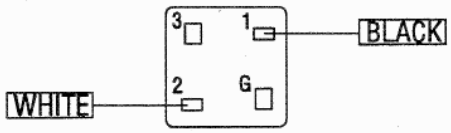
S1, S2, S9, S35, S36

Cable Assembly — J11/S2, S35, S36
1446657-749, Sheet 1 of 1



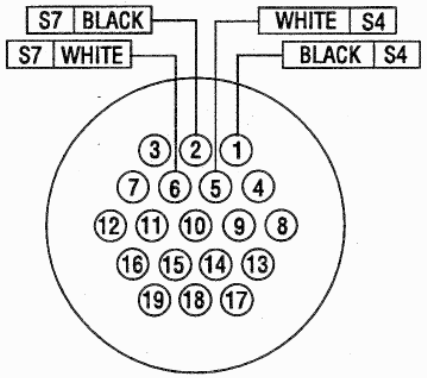
P11

WIRE CHART		
COLOR	FROM	TO
BLACK	S1-1	P11-3
WHITE	S1-2	P11-6
BLACK	S2-1	P11-16
WHITE	S2-2	P11-17
BLACK	S9-1	P11-2
WHITE	S9-2	P11-5
BLACK	S35-1	P11-12
WHITE	S35-2	P11-18



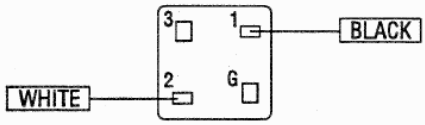
S1, S2, S9, S35

Cable Assembly — J11/S2, S35
1446657-770, Sheet 1 of 1



P12

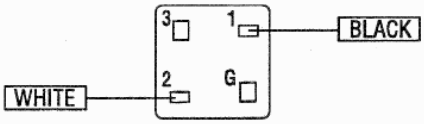
WIRE CHART		
COLOR	FROM	TO
BLACK	S4-1	P12-1
WHITE	S4-2	P12-5
BLACK	S7-1	P12-2
WHITE	S7-2	P12-6



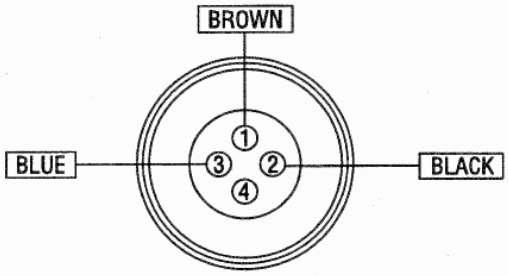
S4, S7

Cable Assembly — P12/S4, S7
1446657-771, Sheet 1 of 1

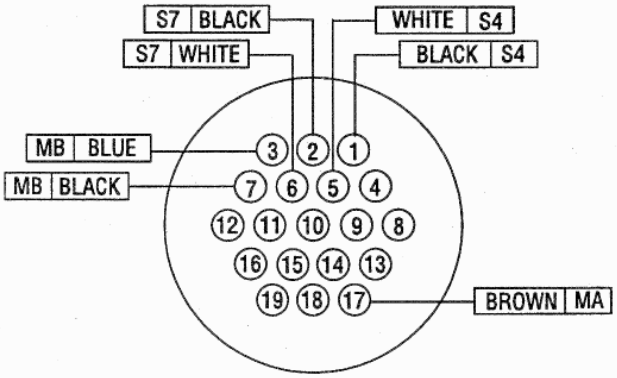
WIRE CHART		
COLOR	FROM	TO
BLACK	S4-1	P12-1
WHITE	S4-2	P12-5
BLACK	S7-1	P12-2
WHITE	S7-2	P12-6
BROWN	MB-1	P12-17
BLACK	MB-2	P12-7
BLUE	MB-3	P12-3



S4, S7

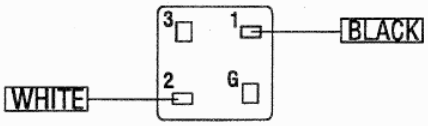


MB



P12

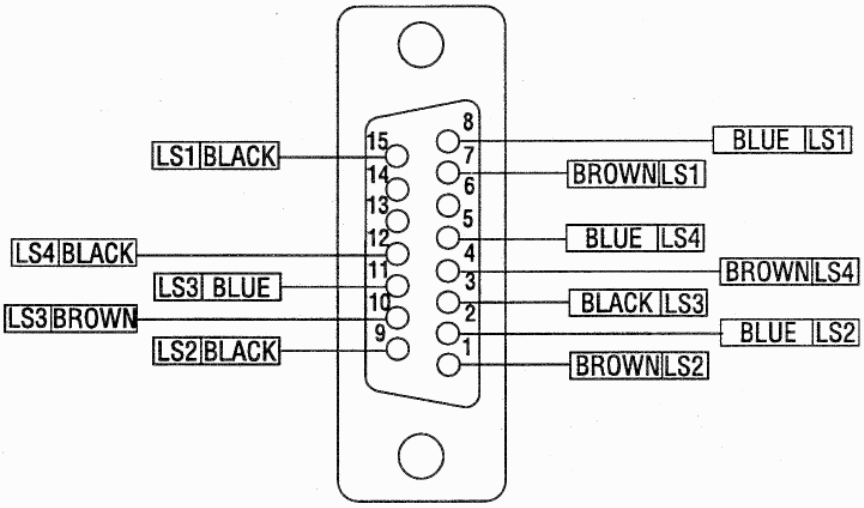
Cable Assembly — P12/S4, S7
1446657-743, Sheet 1 of 1



S8

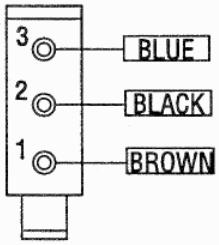
WIRE CHART		
COLOR	FROM	TO
BLACK	S8-1	-------
WHITE	S8-2	-------

Cable Assembly — S8
136809-801, Sheet 1 of 1



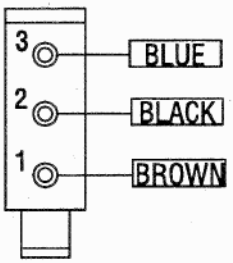
P18

WIRE CHART		
COLOR	FROM	TO
BROWN	LS1-1	P18-7
BLACK	LS1-2	P18-15
BLUE	LS1-3	P18-8
BROWN	LS2-1	P18-1
BLACK	LS2-2	P18-9
BLUE	LS2-3	P18-2
BROWN	LS3-1	P18-10
BLACK	LS3-2	P18-3
BLUE	LS3-3	P18-11
BROWN	LS4-1	P18-4
BLACK	LS4-2	P18-12
BLUE	LS4-3	P18-5

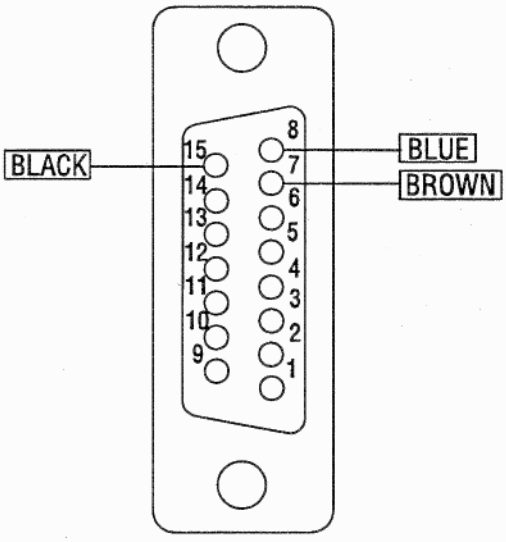


LS1/LS2/LS3/LS4

Cable Assembly — P18/LS1/LS2/LS3/LS4
136809-697, Sheet 1 of 1



LS1/LS3

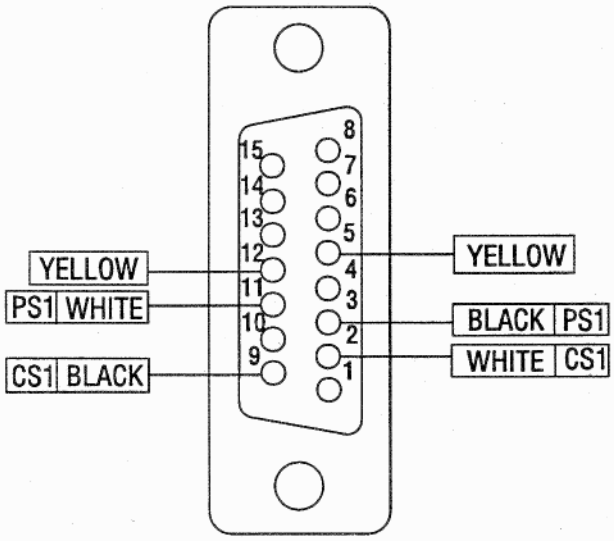


P18

WIRE CHART		
COLOR	FROM	TO
BROWN	LS1-1	P18-7
BLACK	LS1-2	P18-15
BLUE	LS1-3	P18-8
BROWN	LS3-1	P18-10
BLACK	LS3-2	P18-3
BLUE	LS3-3	P18-11

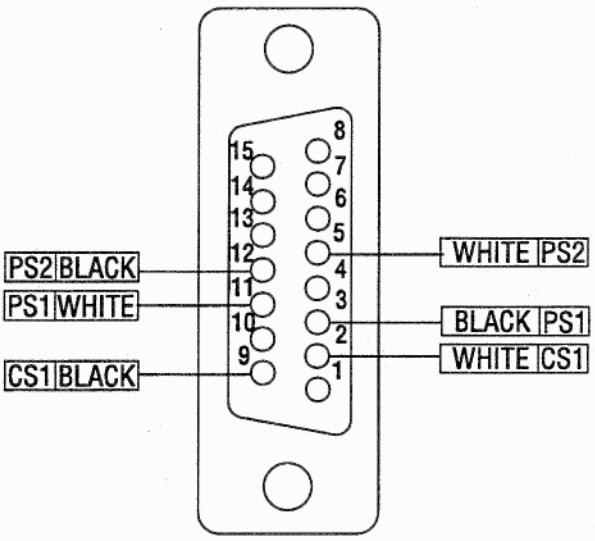
Cable Assembly — P18/LS1/LS3
136809-752, Sheet 1 of 1

WIRE CHART		
COLOR	FROM	TO
BLACK	P19-9	CS1-1
WHITE	P19-2	CS1-2
BLACK	P19-3	PSI-1
WHITE	P19-11	PSI-2
YELLOW	P19-5	P19-12



P19

Cable Assembly — P19/CS1/PS1
136809-753, Sheet 1 of 1

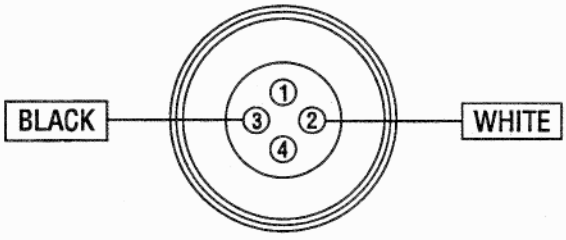


WIRE CHART		
COLOR	FROM	TO
BLACK	P19-9	CS1-1
WHITE	P19-2	CS1-2
BLACK	P19-3	PS1-1
WHITE	P19-11	PS1-2
BLACK	P19-12	PS2-1
WHITE	P19-5	PS2-2

P19

Cable Assembly — P19/CS1/PS1/PS2
136809-802, Sheet 1 of 1

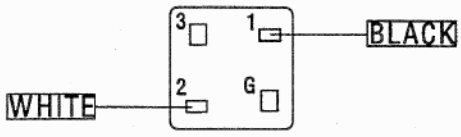
WIRE CHART		
COLOR	FROM	TO
BLACK	P100-3	------
WHITE	P100-2	------



P100

Cable Assembly — P100
136809-755. Sheet 1 of 1

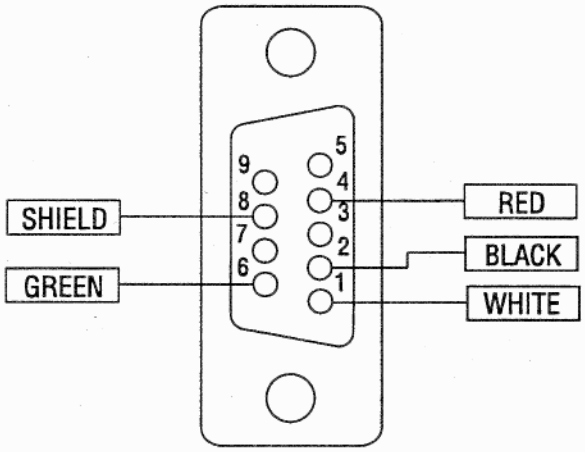
WIRE CHART		
COLOR	FROM	TO
BLACK	AUS-1	------
WHITE	AUS-2	------



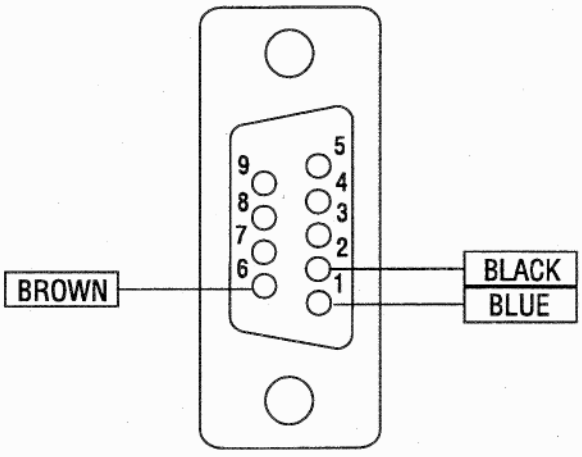
S8

Cable Assembly — AUS
136809-756, Sheet 1 of 1

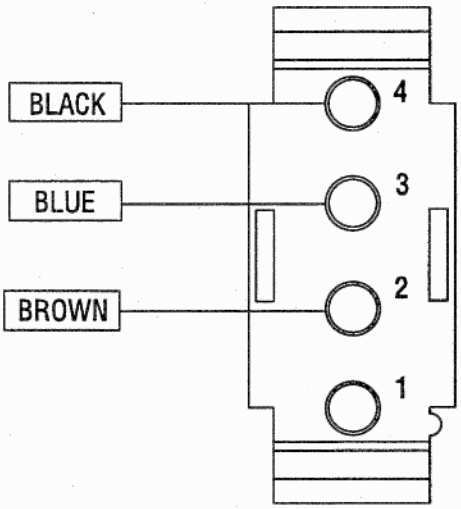
WIRE CHART	
COLOR	TO
RED	P23-4
BLACK	P23-2
WHITE	P23-1
GREEN	P23-6
SHIELD	P23-8



Chamber Pressure Transducer Harness Assembly
136809-787, Sheet 1 of 1



PB



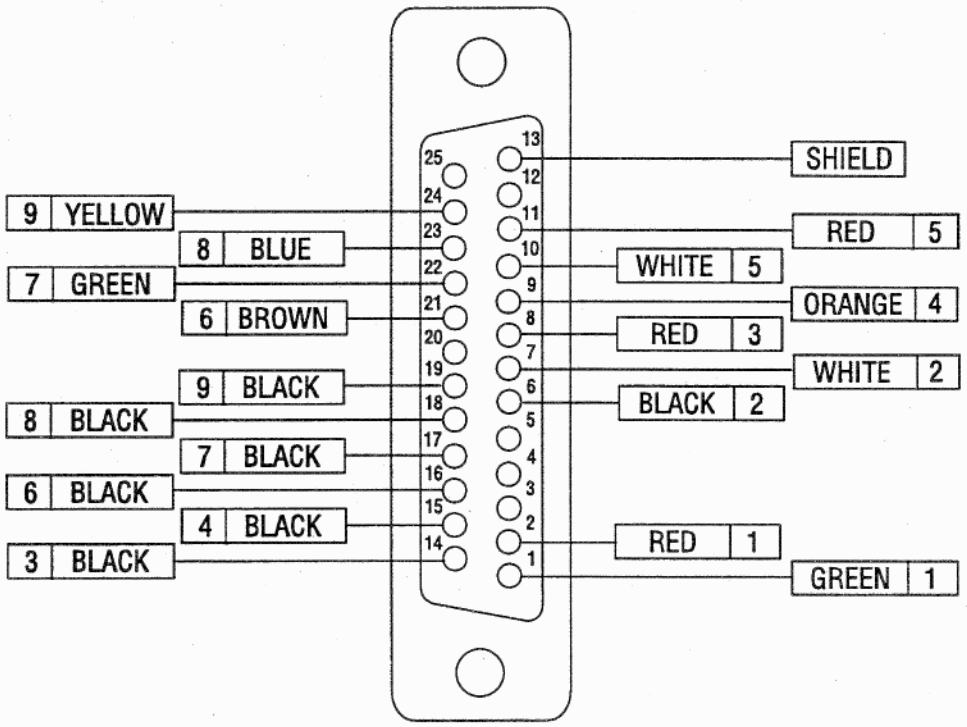
PA

WIRE CHART		
COLOR	FROM	TO
BROWN	PA-2	PB-6
BLUE	PA-3	PB-1
BLACK	PA-4	PB-2

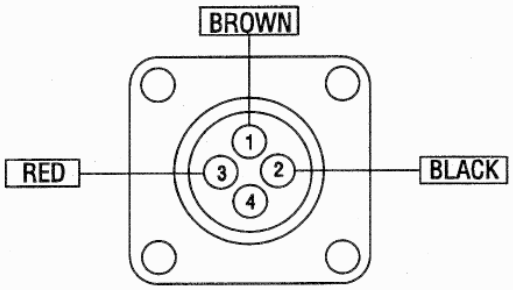
RTD Cable Assembly
136809-751, Sheet 1 of 1

WIRE CHART			
TWISTED PAIR	COLOR	FROM	TO
1	GREEN	PA-1	PB-1
	RED	PA-2	PB-2
2	BLACK	PA-6	PB-6
	WHITE	PA-7	PB-7
3	RED	PA-8	PB-8
	BLACK	PA-14	PB-14
4	ORANGE	PA-9	PB-9
	BLACK	PA-15	PB-15
5	WHITE	PA-10	PB-10
	RED	PA-11	PB-11
6	BLACK	PA-16	PB-16
	BROWN	PA-21	PB-21
7	BLACK	PA-17	PB-17
	GREEN	PA-22	PB-22
8	BLACK	PA-18	PB-18
	BLUE	PA-23	PB-23
9	BLACK	PA-19	PB-19
	YELLOW	PA-24	PB-24
	SHIELD	PA-13	PB-13

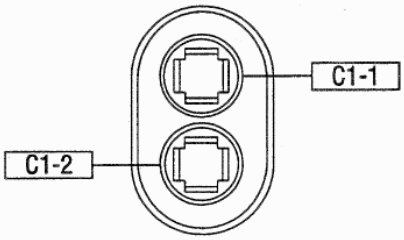
WIRE CHART		
COLOR	FROM	TO
BLACK	J14-2	FILTER-L
WHITE	J14-1	FILTER-N
BLACK	J13-3	SW1-1
WHITE	J13-2	SW1-4
GRN/YEL	J13-1	GND
BLACK	SW1-2	TB1-L1
WHITE	SW1-5	TB1-L2
BLACK	FILTER-BLK	SW1-1
WHITE	FILTER-WHT	SW1-4
GRN/YEL	FILTER-GRN	GND
GRN/YEL	TB1-G	GND
RED	J2-3	FAN+
BLACK	J2-1	FAN-
--------	J3	J15
--------	J4	J16



Control Box Assembly and Display Cable Assembly
146657-782, Sheet 2 of 3, 136809-754, Sheet 1 of 1



M



C1

WIRE CHART		
COLOR	FROM	TO
RED	M-3	C1-2
BROWN	M-1	C1-1
BLACK	MOTOR	M-2
BROWN	MOTOR	C1-1
BLACK	MOTOR	C1-2

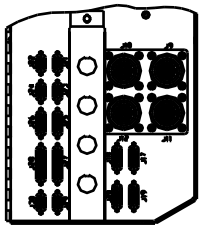
Motor Housing Assembly
146657-837, Sheet 1 of 1

WIRE CHART		
COLOR	FROM	TO
BLACK	P100	P9-1
WHITE	(GEN)	P9-5
BLACK	AUS	P11-1
WHITE	(GEN)	P11-4

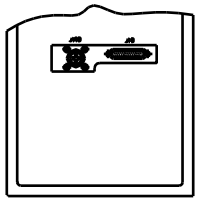
Assembly - Electric Steam Generator Piping and Wiring Package
146660-103/104, Sheet 1 of 1

WIRE CHART		
COLOR	FROM	TO
BLACK	P100	P9-1
WHITE	(GEN)	P9-5
BLACK	AUS	P11-1
WHITE	(GEN)	P11-4

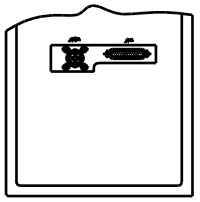
Assembly - Electric Steam Generator Piping and Wiring Package - 20"
146660-105/106, Sheet 1 of 1



VIEW 'A'

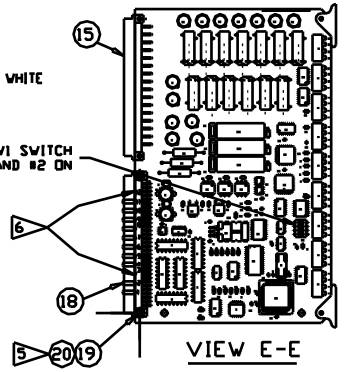


VIEW 'D'
(NON-OPERATING END)



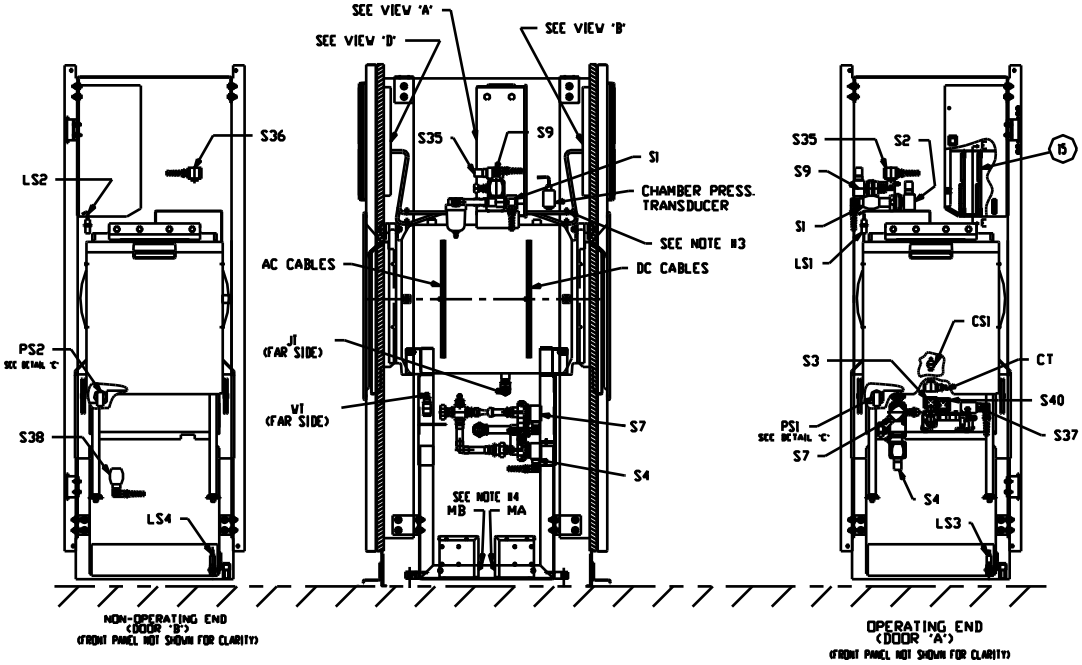
VIEW 'B'
(OPERATING END)

DETAIL 'C'
PS1 & PS2



VIEW E-E

QUANTITY				PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION/MATERIAL	REV	REVISION DATE
					1				
				146657-843	2	FINAL WIRING ASS'Y.	20" SINGLE DOOR		
				146657-844	3	FINAL WIRING ASS'Y.	16" DOUBLE DOOR		
				146657-845	4	FINAL WIRING ASS'Y.	20" DOUBLE DOOR		
		1	1	146657-774	5	CABLE ASS'Y.	P9/P10A,P10D		
		1	1	146657-773	6	CABLE ASS'Y.	P10/S3,S37,MA		
		1	1	146657-770	7	CABLE ASS'Y.	P11/S2,S35		
		1	1	146657-771	8	CABLE ASS'Y.	P12/S4,S7		
		1	1	136809-752	9	CABLE ASS'Y.	P18/LS1,LS3		
3	3	3	3	136809-751	10	CABLE ASS'Y.	CT,JT,WT		
		1	1	136809-753	11	CABLE ASS'Y.	P19/CS1,PS1		
2	2	1	1	136809-754	12	CABLE ASS'Y.	P1A/P27, P1B/P28		
1	1			136809-697	13	CABLE ASS'Y.	P18/LS1,LS2,LS3,LS4		
1	1			146657-854	14	CABLE ASS'Y.	P9/P10A,P10B		
1	1			146659-066	15	I/O BOARD	ASSEMBLY (SEE VIEW E-E)		
A/R	A/R	A/R	A/R	84104-001	16	TIE, WIRE	SEE NOTE #2		
1	1			146657-743	17	CABLE ASS'Y.	P12/S4,S7,MB		
1	1			129367-507	18	KEYING STRIP			
2	2			129367-509	19	SCREW,PAN HD	#2-56 X 3/4" LG.		
2	2			10370-045	20	NUT HEX.	#2-56		
A/R	A/R				21	ADHESIVE	LOCTITE #222		
1	1			146657-748	22	CABLE ASS'Y.	P10/S3,S37,S38,MA		
1	1			146657-749	23	CABLE ASS'Y.	P11/S2,S35,S36		
1	1			136809-802	24	CABLE ASS'Y.	P19/CS1,PS1,PS2		



NON-OPERATING END
(DOOR 'B')
(FRONT PANEL NOT SHOWN FOR CLARITY)

OPERATING END
(DOOR 'A')
(FRONT PANEL NOT SHOWN FOR CLARITY)

AC CABLE CONNECTIONS SINGLE AND DOUBLE DOOR

FROM	TO	LOCATION	ITEM #
P9	P10A	DOOR 'A' CONTROL PANEL	5
P10	S3	FAST EXHAUST	6
P10	S37	DOOR 'A' SEAL EXHAUST	6
P10	S40	DUAL EXHAUST	6
P11	S1	CHAMBER STEAM	7
P11	S2	FILTERED AIR	7
P11	S9	JACKET STEAM	7
P11	S35	DOOR 'A' SEAL STEAM	7
P12	S4	EXHAUST COOLING	8
P12	S7	VACUUM WATER	8
P10	MA	DOOR 'A' MOTOR POWER	6

DC CABLE CONNECTIONS SINGLE AND DOUBLE DOOR

FROM	TO	LOCATION	ITEM #
J18	LS1	DOOR 'A' CLOSED	9
J19	CS1	FLOODED CHAMBER SWITCH	11
J19	PS1	DOOR 'A' SEAL PRESS. SW.	11
J21	JT	JACKET RTD	10
J22	WT	WASTE RTD	10
J24	CT	CHAMBER RTD	10
J23	---	CHAMBER PRESS. TRANS.	--
J27	P1A	DOOR 'A' CONTROL PANEL	12
J18	LS3	DOOR 'A' FOOT PEDAL	9

AC CABLE CONNECTIONS DOUBLE DOOR

FROM	TO	LOCATION	ITEM #
P9	P10B	DOOR 'B' CONTROL PANEL	14
P10	S38	DOOR 'B' SEAL EXHAUST	22
P11	S36	DOOR 'B' SEAL STEAM	23
P12	MB	DOOR 'B' MOTOR POWER	17

DC CABLE CONNECTIONS DOUBLE DOOR

FROM	TO	LOCATION	ITEM #
J18	LS2	DOOR 'B' CLOSED	13
J19	PS2	DOOR 'B' SEAL PRESS. SW.	24
J28	P1B	DOOR 'B' CONTROL PANEL	12
J18	LS4	DOOR 'B' FOOT PEDAL	13

NOTE:

1. MARK ALL CABLE CONNECTIONS USING A PERMANENT METHOD (LABEL, INDELIBLE INK OR EQUIVALENT) CAPABLE OF CONTINUOUS OPERATION AT 85° (185°).
2. CABLES ARE TO BE ROUTED AWAY FROM PIPING AND BUNDLED TOGETHER IN THEIR RESPECTIVE VOLTAGE TYPES USING WIRE TIES, ITEM #16.
3. USE WIRE TIE (ITEM #16) TO SECURE CONTRL PANEL CABLES TO UP RIGHT. MAKE CERTAIN THERE IS SUFFICIENT CABLE TO OPEN DOOR.
4. MARK 'MA' AND 'MB' WITH 16 PT. LETTERS MIN. USING A PERMANENT METHOD (LABEL, INDELIBLE INK, OR EQUIVALENT) CAPABLE OF CONTINUOUS OPERTING AT 85°(185°).
5. USE SERVICE REMOVABLE LOCTITE #222 (ITEM #21).
6. REMOVE KEYING PINS #3 AND #12 FROM KEYING STRIP (ITEM #18)

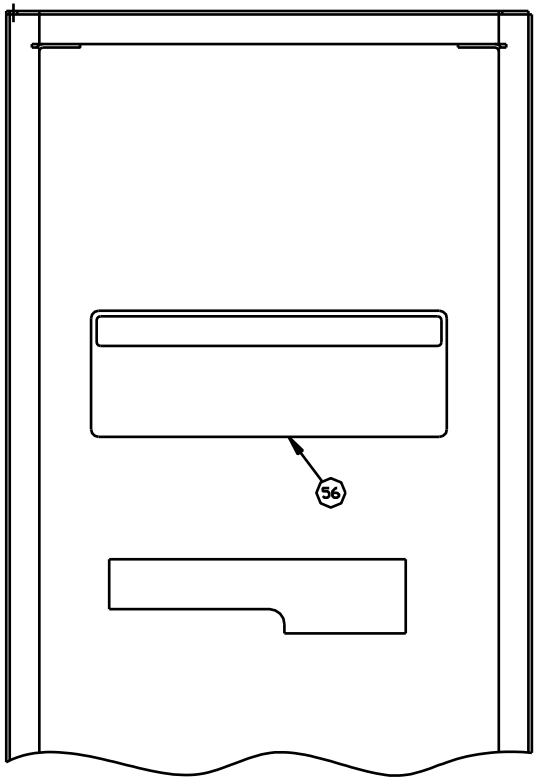
TOLERANCE STANDARD UNLESS OTHERWISE NOTED | FRACTIONAL +/-1/64 | DECIMAL +/-.005 | ANGULARITY +/-1° | MACH.SURF.

STERIS

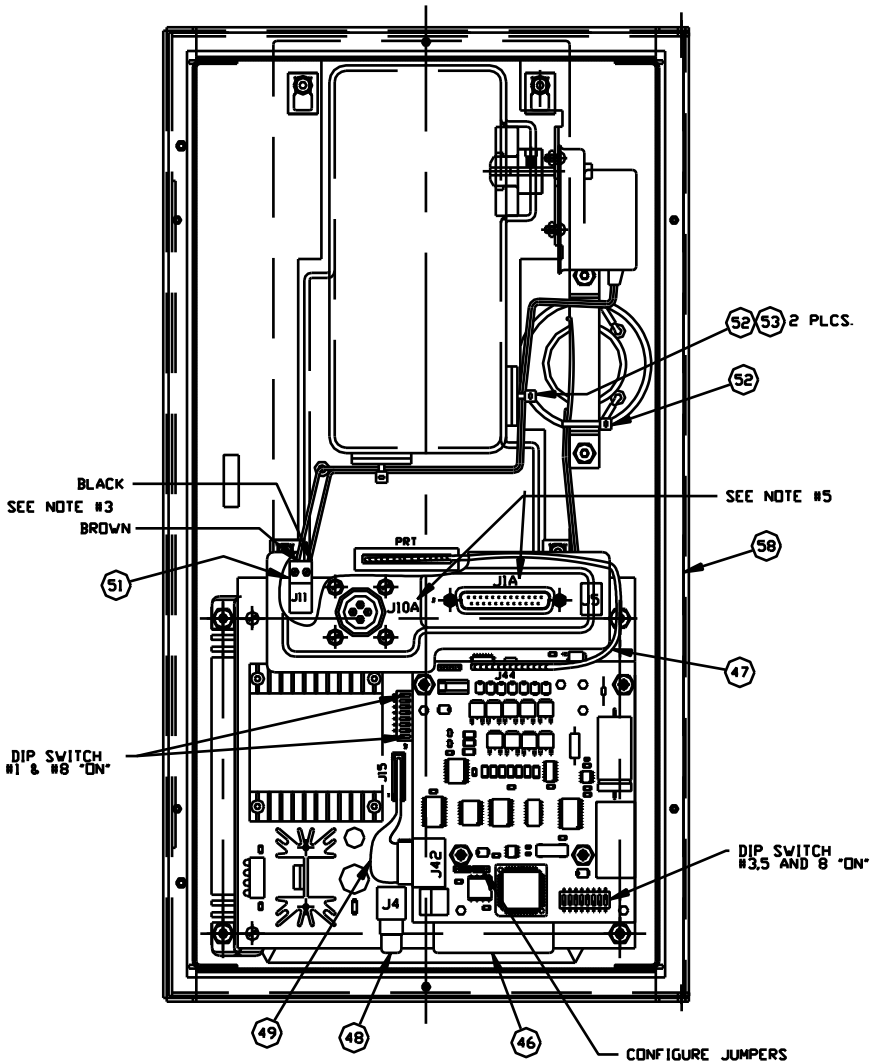
STERIS Corporation
Mentor, OH

FIRST MADE FOR:

SHEET 1 OF 1



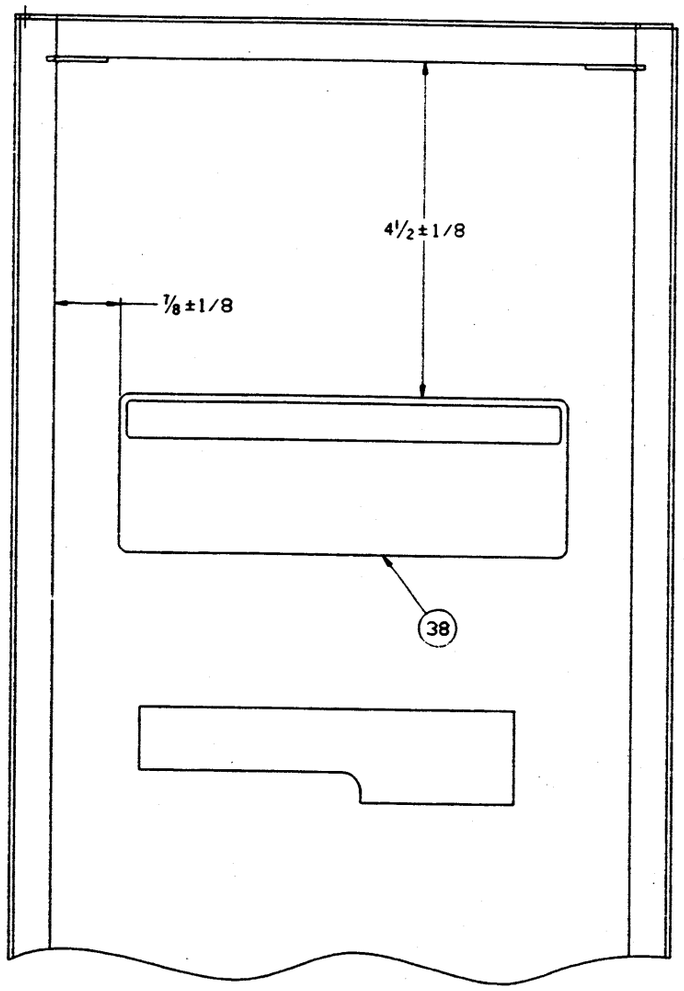
VIEW F-F



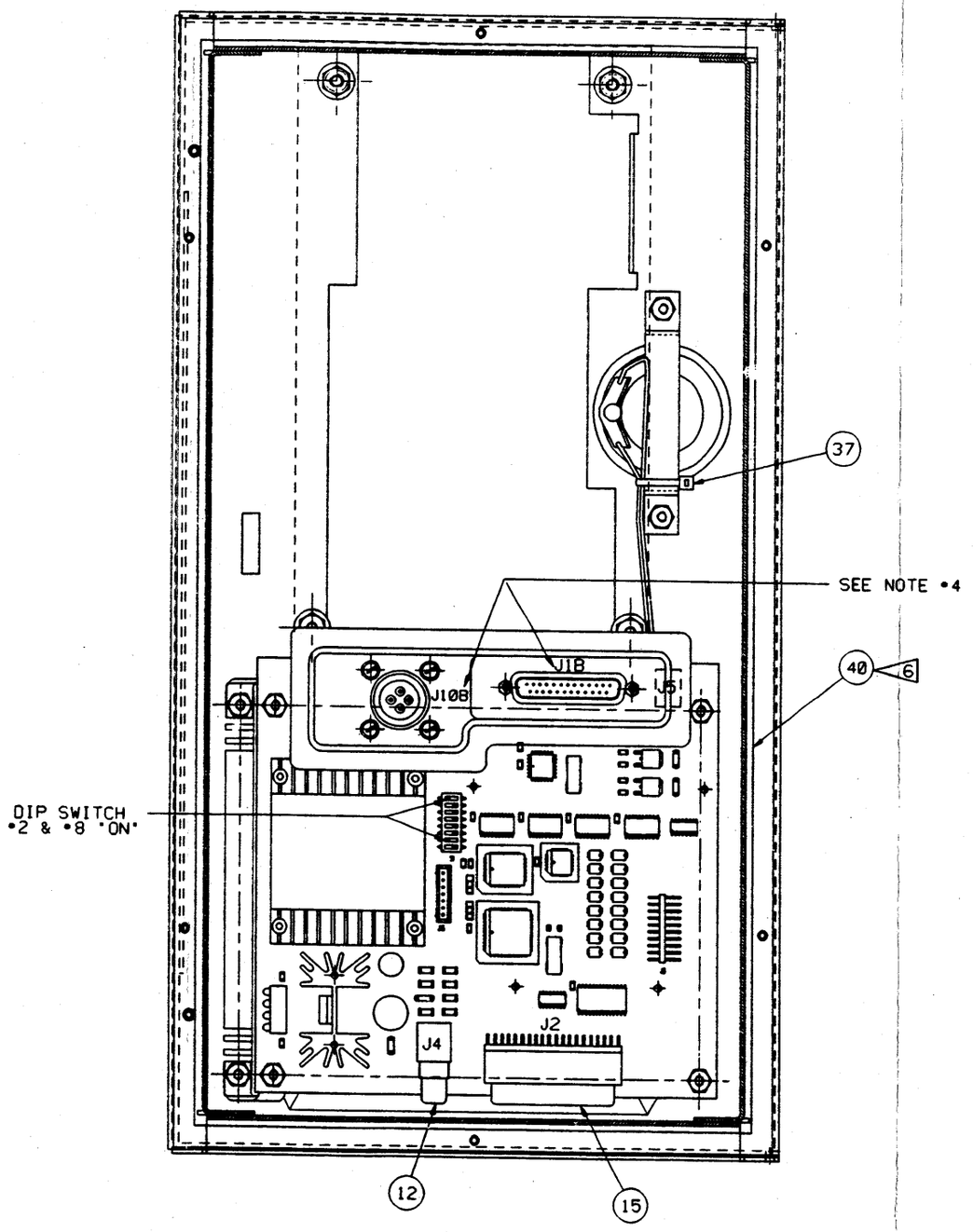
SECTION E-E

REFERENCE DRAWING NUMBER 146657-786

QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION, MATERIAL	REV NO.	REVISION DATE
XXX	146657-850	1	DISPLAY CONTROL HOUSING ASS'Y N.O.E.		8	05-18-98



VIEW F-F



SECTION E-E

TOLERANCE STANDARD UNLESS OTHERWISE NOTED
FRACTIONAL +/-1/64 DECIMAL +/-.005
ANGULARITY +/-1° MACH. SURF. 125

STERIS

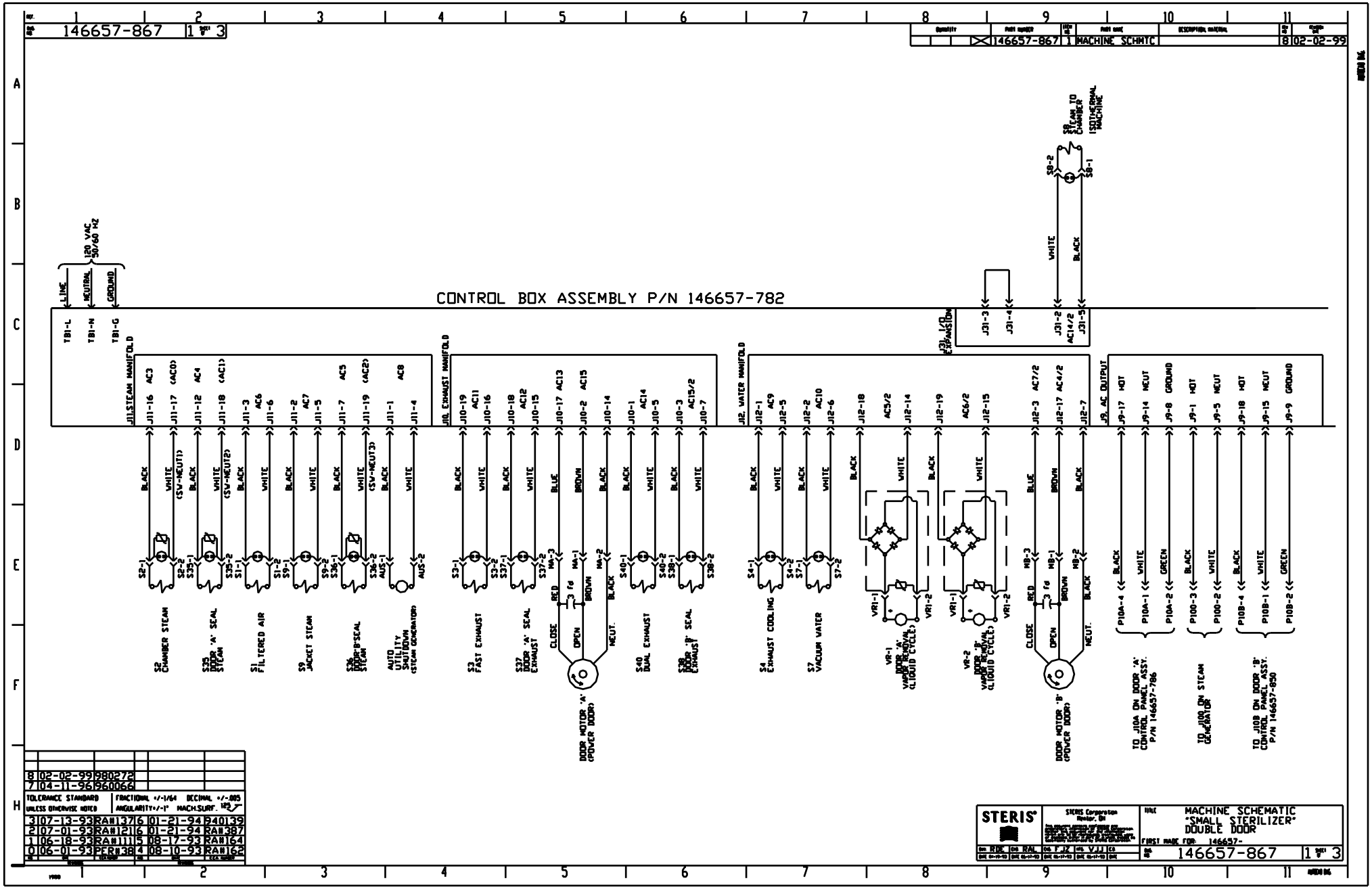
STERIS Corporation
Mentor, OH

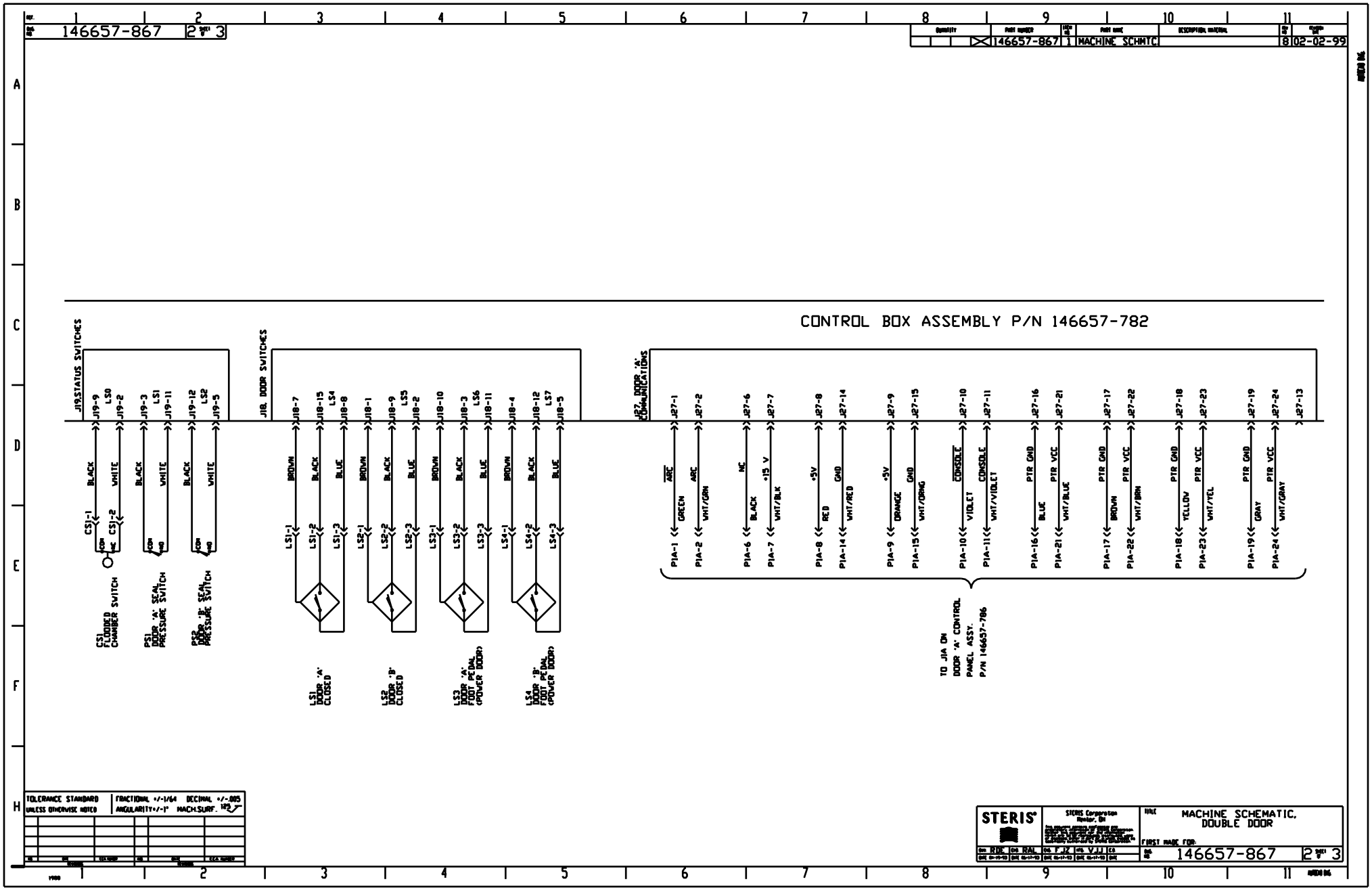
TITLE DISPLAY CONTROL HOUSING ASSEMBLY N.O.E.

FIRST MADE FOR:

DWG. NO. 146657-850 SHEET 3 OF 4

CAD DWG.


146657-867 1 OF 3
CONTROL BOX ASSEMBLY P/N 146657-782
120 VAC 50/60 HZ
LINE
NEUTRAL
GROUND
TB1-L
TB1-N
TB1-G
J11 STEAM MANIFOLD
J10 EXHAUST MANIFOLD
J12 WATER MANIFOLD
J9 AC OUTPUT
S2 CHAMBER STEAM
S35 DOOR 'A' SEAL STEAM
S1 FILTERED AIR
S9 JACKET STEAM
S26 DOOR 'B' SEAL STEAM
AUTO UTILITY SHUTDOWN (STEAM GENERATOR)
S3 FAST EXHAUST
S37 DOOR 'A' SEAL EXHAUST
S40 DUAL EXHAUST
S38 DOOR 'B' SEAL EXHAUST
S4 EXHAUST COOLING
S7 VACUUM WATER
VR-1 DOOR 'A' VAPOR REMOVAL (LIQUID CYCLE)
VR-2 DOOR 'B' VAPOR REMOVAL (LIQUID CYCLE)
DOOR MOTOR 'A' (POWER DOOR)
DOOR MOTOR 'B' (POWER DOOR)
S8 STEAM TO CHAMBER (SOLENOID MACHINE)
J31 I/O EXPANSION
TO J10A ON DOOR 'A' CONTROL PANEL ASSY. P/N 146657-786
TO J10B ON STEAM GENERATOR
TO J10B ON DOOR 'B' CONTROL PANEL ASSY. P/N 146657-850
MACHINE SCHEMATIC
"SMALL STERILIZER"
DOUBLE DOOR
FIRST MADE FOR: 146657-
146657-867 1 OF 3

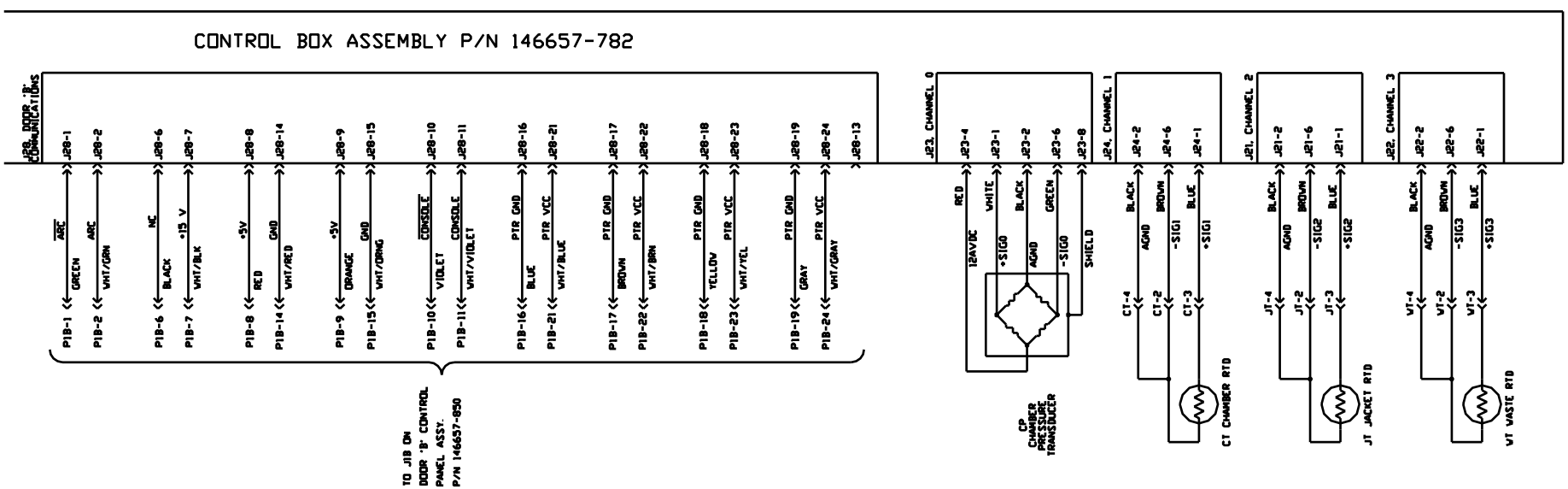

146657-867 2 OF 3
CONTROL BOX ASSEMBLY P/N 146657-782
J19.STATUS SWITCHES
J18. DOOR SWITCHES
J27. DOOR 'A' COMMUNICATIONS
CS1 FLOODED CHAMBER SWITCH
PS1 DOOR 'A' SEAL PRESSURE SWITCH
PS2 DOOR 'B' SEAL PRESSURE SWITCH
LS1 DOOR 'A' CLOSED
LS2 DOOR 'B' CLOSED
LS3 DOOR 'A' FOOT PEDAL (POWER DOOR)
LS4 DOOR 'B' FOOT PEDAL (POWER DOOR)
TO J1A ON DOOR 'A' CONTROL PANEL ASSY. P/N 146657-786
MACHINE SCHMTC
02-02-99
MACHINE SCHEMATIC, DOUBLE DOOR
STERIS

SIZE	DWG NO	REV
B	146657-867	3

SCALE: NONE SHEET 3 OF 3

QUANTITY	PART NUMBER	ITEM NO	PART NAME	DESCRIPTION, MATERIAL	NO	CHANGE NO
	146657-867	1	MACHINE SCHMTC		8	02-02-99

CONTROL BOX ASSEMBLY P/N 146657-782



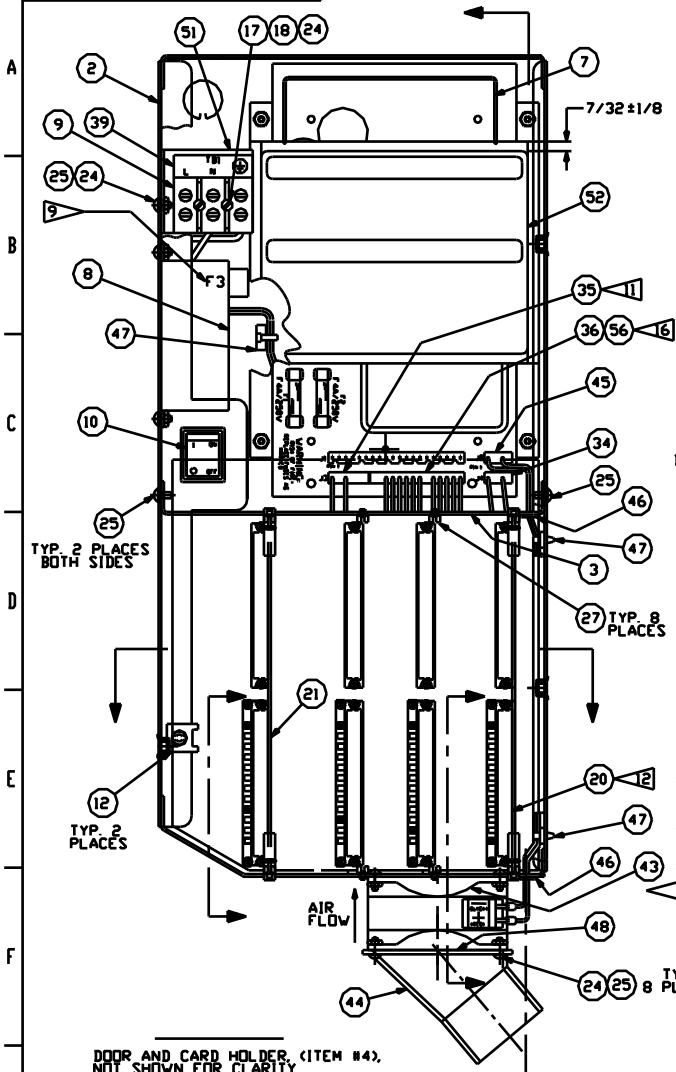
TOLERANCE STANDARD UNLESS OTHERWISE NOTED
FRACTIONAL +/-1/64 DECIMAL +/-.005
ANGULARITY +/-1° MACH.SURF. 125

STERIS®
STERIS Corporation Mentor, OH

TITLE: MACHINE SCHEMATIC, DOUBLE DOOR

FIRST MADE FOR:

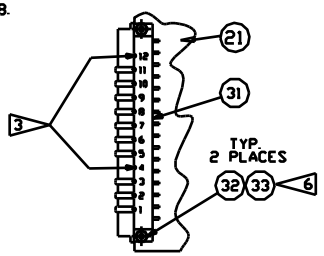
SIZE B DWG NO 146657-867 REV 3 SHT 3

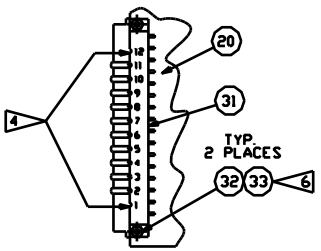

7/32 ±1/8
TYP. 2 PLACES BOTH SIDES
TYP. 8 PLACES
TYP. 2 PLACES
AIR FLOW
TYP. 8 PLACES
DOOR AND CARD HOLDER, (ITEM #4), NOT SHOWN FOR CLARITY

NOTES:

1. #16 AWG STRANDED TINNED COPPER WIRE, 26/30 STRANDING, PVC INSULATION, 300V, UL 1007 80°C, CSA TR-64 90°C, ALPHA #3057 OR EQUIVELENT.
2. CONNECTION METHOD 'A', ITEM 40, .28" STRIP
   CONNECTION METHOD 'B', ITEM 37, 1/4" STRIP
   CONNECTION METHOD 'C', ITEM 41, /4" STRIP
3. REMOVE KEYING PINS #4 AND #12 FROM KEYING STRIP (ITEM #31) ON I/O BOARD (ITEM #21).
4. REMOVE KEYING PINS #1 AND #12 FROM KEYING STRIP (ITEM #31) ON CONTROL BOARD (ITEM #20).
5. RETAINING CLIP IS SUPPLIED WITH COVER, CONNECTOR (ITEM #28)
6. USE SERVICE REMOVABLE LOCTITE #222 (ITEM #42) ON STANDOFF (ITEM #22) AS INDICATED.
7. TORQUE REQUIREMENTS: #2-56 SCREW - 2 IN-LBS.
   #4-40 SCREW - 4-6 IN-LBS.
   #6-32 SCREW - 8 IN-LBS.
   #8-32 SCREW - 4-6 IN-LBS.
   #10-32 SCREW,GND - 12 IN-LBS.
8. ATTACH GASKET (ITEM #6) AFTER INSTALLING RETAINER (ITEM #13) AND CONNECTOR COVER (ITEM #28).
9. MARK F3, J9-J12, J17-30 WITH 8PT. LETTERS USING A PERMANENT METHOD (LABEL, INDELIBLE INK, OR EQUIVALENT) CAPABLE OF CONTINUOUS OPERATING AT 85°C (185°F).
10. HIPOT AT 1240VAC FOR ONE MINUTE. CONNECT HIPOT HOT LEAD TO 'L' AND 'N' OF TB1. CONNECT HIPOT RETURN TO 'G' OF TB1.
    ON P10 CONNECT THE FOLLOWING PINS:
    1,2,3,5,7,14,15,16,17,18 AND 19.
    ON P11 CONNECT THE FOLLOWING PINS:
    1,2,3,4,5,6,7,12,16,17,18 AND 19.
    ON P12 CONNECT THE FOLLOWING PINS:
    1,2,3,5,6,7,14,15,17,18 AND 19.
    ON P27/28 CONNECT THE FOLLOWING PINS:
    7,8,9,13,14 AND 15.
    HIPOT TEST WITH CONTROL BOARD (ITEM #20) AND I/O BOARD (ITEM #21) INSTALLED. FUNCTIONAL TEST PER STERIS DWG. 129367-584.
11. MAKE CERTAIN WIRE HARNESSES J3A/J15A (ITEM #35) AND J14 (ITEM #30), ARE PHSICALLY SEPERATED FROM ALL OTHER WIRE HARNESSES.
12. DIP SWITCH SETTINGS OF CONTROL BOARD (ITEM #20)
    DIP SWITCH SW1: 1,6 'ON' REST 'OFF'
    DIP SWITCH SW2: 1,4,5 'ON' REST 'OFF'
    DIP SWITCH SW3: 1,4,5 'ON' REST 'OFF'
    DIP SWITCH SW4: 1,4,5 'ON' REST 'OFF'
13. CONTROL ASSEMBLY TO BE TESTED USING 'CONTROL TEST PROCEDURE' P/N 129367-584. AFTER CONTROL IS TESTED 'FACTORY TEST PROGRAM' P/N 93919-006 IS TO BE INSTALLED.
14. ITEM 54- REMOVE AND DISCARD SCREW AND NUT AND REPLACE WITH ITEM 55 JACK SCREW, FOR INSTALLATION OF ITEM 54 ON J27 AND J28.
15. DISCARD NUT AND WASHERS SUPPLIED WITH STANDOFF (ITEM #22).
16. APPLY "LUBRICANT, CONTACT, ANTI-FRETTING" TO CONNECTOR RECEPTACLE AND PINS. SUPPLIER "SPECIALTY CHEMICAL CONSULTANTS" CATALOG NO. PK-800.

QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION, MATERIAL
		1		
1	146657-823	2	CONTROL BOX	WELDMENT
1	136809-705	3	BKT, CIRCUIT BD.	
1	93918-045	4	HOLDER, CARD	
1	136809-732	5	COVER, REAR	
1	136809-737	6	GASKET,CONTROL	BOX
1	136809-512	7	POWER SUPPLY	AND BOX ASS'Y.
1	93910-584	8	FILTER, LINE	
1	129361-158	9	BLOCK, TERMINAL	
1	136809-742	10	SWITCH, CONTROL	WIRE HARNESS J13
2	129367-516	11	FASTENER,	1/4 TURN
2	129362-347	12	RECEPTACLE,	1/4 TURN
2	129362-350	13	RETAINER,	1/4 TURN
2	82675-001	14	SCREW,HEX.HD.	#10-32 X 3/8 LG. (GREEN GND.)
2	124361-013	15	LOCKWASHER	#10 EXT. TOOTH
2	129360-483	16	STICKER,	NATURAL GROUND
2	3966-041	17	SCREW,RD.HD.	#6-32 X 1 1/4 LG.
2	19675-041	18	LOCKWASHER	#6
1	146657-779	19	CONNECTOR	BOARD ASSEMBLY
1	146656-185	20	CONTROL, BD.	ASSEMBLY
1	146659-005	21	I/O BOARD	ASSEMBLY
14	129361-899	22	STANDOFF, M/F	#4-40
16	129367-406	23	SCREW,HEX.HD.	SELF TAPPING #8-32 X 1/2" LG.
20	84121-004	24	NUT, KEPS	#6
28	93908-039	25	SCREW, SEMS	#6-32 X 3/8" LG.
4	93912-161	26	STANDOFF	#6-32 X 1 1/2" LG.
8	93918-055	27	GUIDE, CARD	
1	93918-056	28	COVER, CONN.	
6	91924-091	29	NUT, SPEED	GRIP
1	93918-071	30	WIRE HARNESS	J14
2	129367-507	31	KEYING, STRIP	
4	129367-509	32	SCREW,PAN HD.	#2-56 X 3/4" LG.
4	10370-045	33	NUT, HEX	#2-56
1	136809-744	34	WIRE HARNESS	4 POS. J4/J16
1	136809-745	35	WIRE HARNESS	6 POS. J3A/J15A
1	136809-746	36	WIRE HARNESS	14 POS.J3B/J15B
1	19522-091	37	TERMINAL, RING	#10 22-16 AWG.
1		38	WIRE, GREEN/YEL	SEE NOTE #1 5" LG.
1	129367-492	39	LABEL	TERMINAL BLOCK
1	129367-365	40	SUPPORT	NON-INSULATED
2	32119-091	41	D DISCONNECT	16-14 AWG .250 X .032
A/R		42	ADHESIVE	LOCTITE #222
1	93918-079	43	FAN	
1	136809-743	44	FAN ADAPTER	
1	93918-080	45	WIRE HARNESS	J2 - FAN
2	129362-405	46	BUSHING	
3	129362-277	47	TIE, CABLE	
1	129367-525	48	FILTER, AIR	
2	93912-226	49	SCREW, HEX HD.	#6-32 X 1/4" LG.
3	84104-001	50	WIRE TIE	
1	93918-354	51	BRACKET, TERMINAL	BLOCK
1	136809-738	52	LABEL, WARNING	
2	84116-003	53	LOCKWASHER	INTER. TOOTH #6
2	56401-554	54	D CONNECTOR ASS'Y	ADAPTER, FILTERED 25 POS.
4	150829-016	55	SCREW, JACK	#4-40 X 5/8 LG.
A/R		56	LUBRICANT	SEE NOTE #16



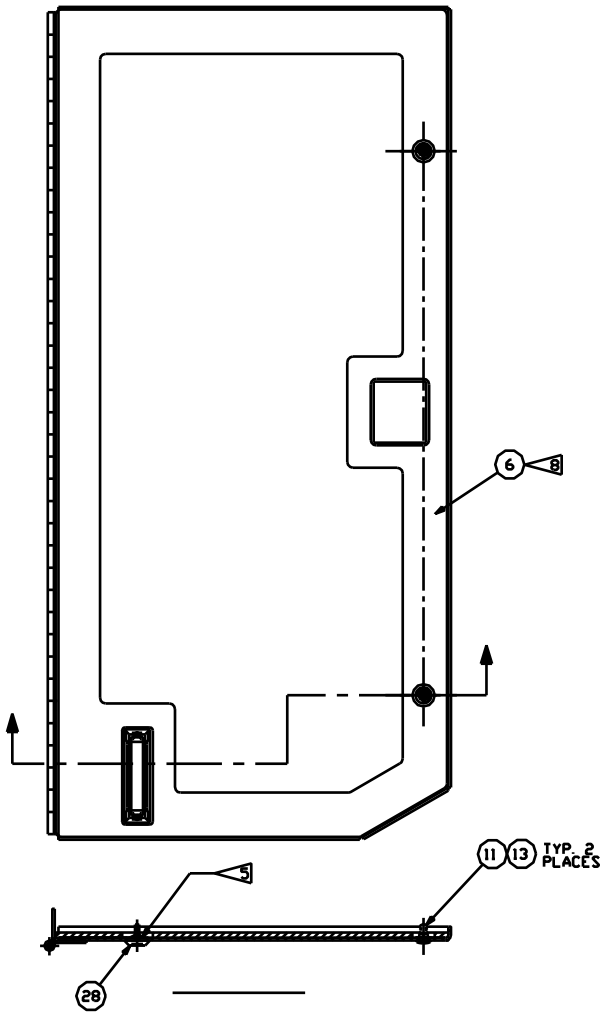


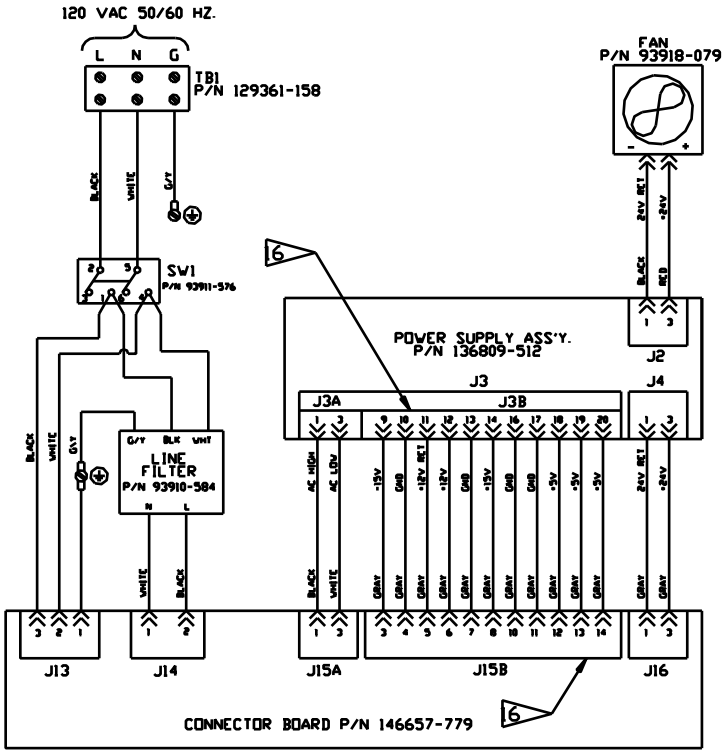
SCALE: 3/4

13	04-25-97	970084	
12	01-14-97	970008	
11	08-21-96	960156	
10	04-11-96	960066	
9	01-15-96	960008	
8	03-14-95	940139	
8	03-14-95	RA 9874	11-09-99 990242

STERIS Corporation, Mentor, OH

1 OF 3



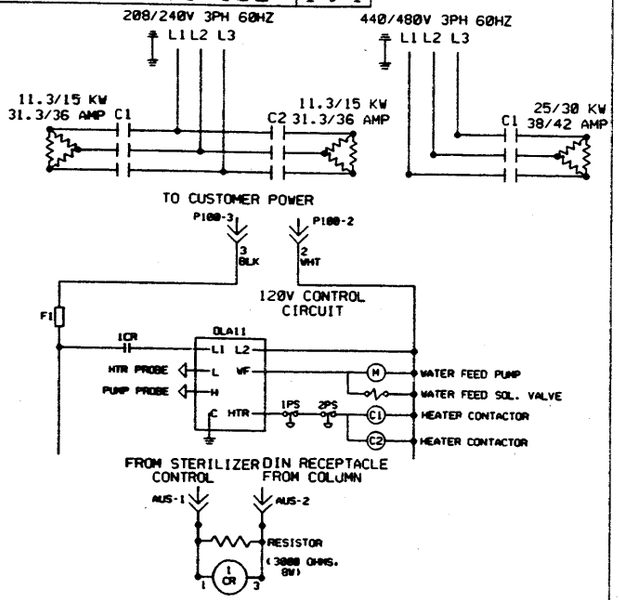


SCALE: 3/4

STERIS

REF. 146655-774/775

DWG. NO. 146660-101/102 | 1 SHEET OF 1

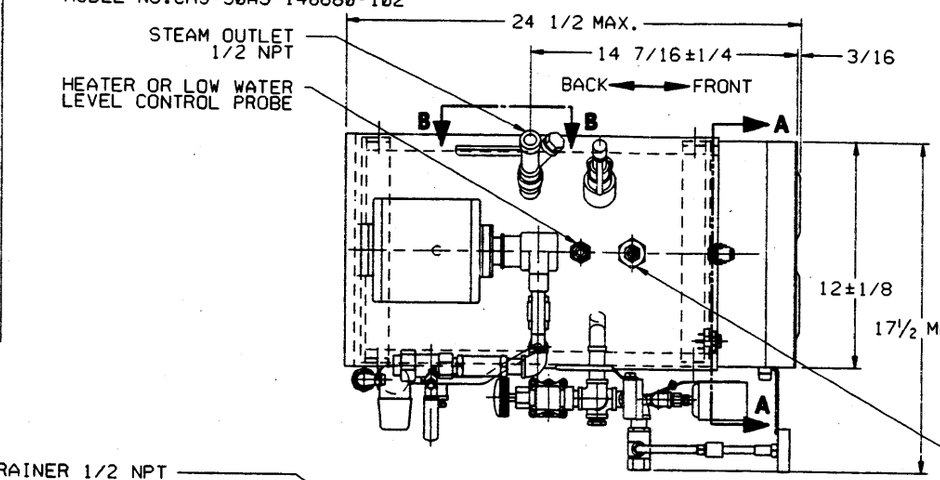


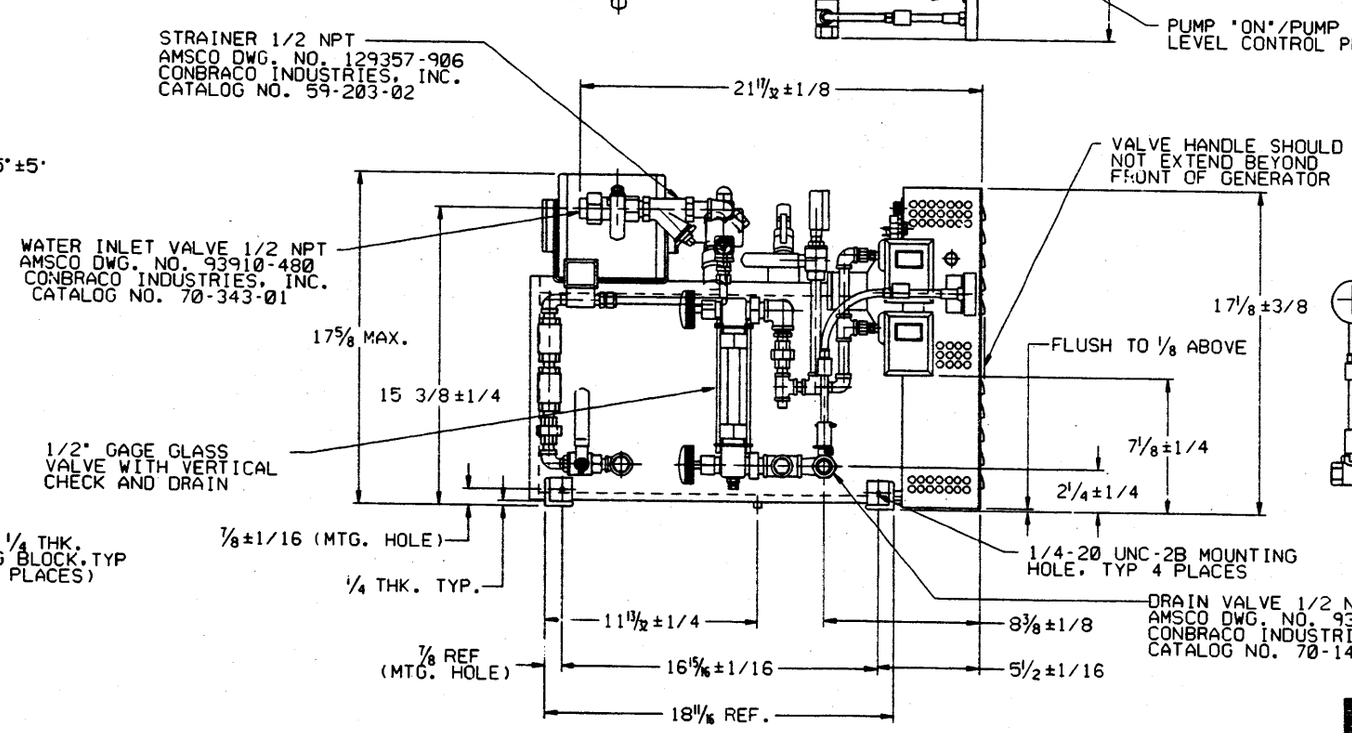
WIRING DIAGRAM

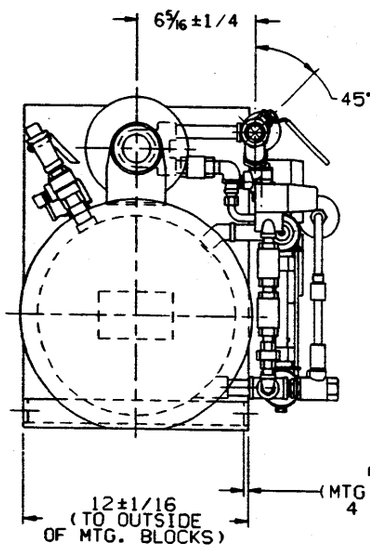
NOTES:

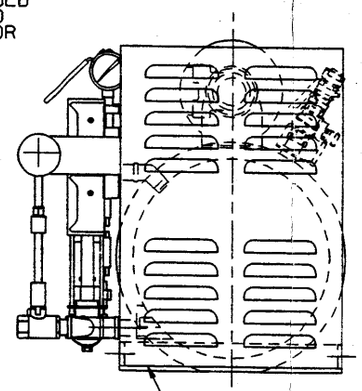
1. MOTOR AND SOLENOID SPECS.: 120V, 50/60HZ, SINGLE PHASE
2. HEATER SPECS.: 30 KW RATING IS 89 LBM/HR AT 60° WATER AND 40 PSIG.
3. GENERATOR MUST BE U.L. RECOGNIZED AND CSA CERTIFIED. U.L. FILE - E 46357 CSA LISTING - LR59327
4. CERTIFICATION OF COMPLIANCE WITH THE CURRENT EDITION OF SECTION 1 OF THE ASME BOILER CODE AND ADDENDA, PART PMB, PEB IS REQUIRED.
5. MAX. ALLOWABLE WORKING PRESSURE OF 100 PSIG AT 400° F.
6. ALL PIPING TO BE OF BRASS/BRONZE TYPE CONSTRUCTION.
7. GENERATOR SHALL CONFORM TO STEAM GENERATOR SPEC., AMSCO DWG. NO. 150828-760.
8. SUGGESTED MANUFACTURER - CHROMALOX®
9. REF. CHROMALOX DWG. EDWIN L WIEGAND DIV. EMERSON ELECTRIC CO. 412-242-0400
   208/240V
   DWG. NO. 022-300018-031
   MODEL NO.CHS-30AS-146660-101
   440-480V
   DWG. NO. 022-300018-033
   MODEL NO.CHS-30AS-146660-102

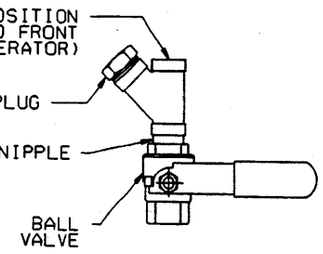
QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION, MATERIAL	REV NO	REVISION DATE
	146660-101	1	STM. GENERATOR	208/240V. 30Kw HTRS	5	06-08-95
	146660-102	2	STM. GENERATOR	440/480V. 30Kw HTRS	5	06-08-95





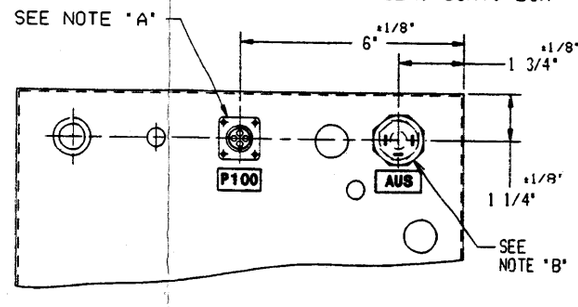






VIEW B-B
1/2" SCALE

VIEW A-A
REAR VIEW OF GEN. CONT. BOX



A. SQUARE FLANGED RECEPTACLE (AMP P/N 206061-1, SERIES 1 CONTACT ARRANGEMENT) WITH PIN CONTACTS (AMP P/N 66102-7 3/16" STRIP LENGTH) IN RECEPTACLE HOUSING.

B. MALE HIRSCHMAN CONNECTOR OR EQUIVALENT. CONNECTOR MUST MEET DIN 43 650/ISO 4400. SEE WIRING DIAGRAM FOR CONNECTIONS INSIDE GENERATOR CONTROL BOX. LABEL BOX BELOW CONNECTOR AS SHOWN ABOVE.

BOTTOM OF ELECTRICAL BOX MUST BE FLUSH OR 1/8 ABOVE BOTTOM OF SUPPORT ANGLES

TOLERANCE STANDARD UNLESS OTHERWISE NOTED	FRACTIONAL ±1/64 DECIMAL ±.005 ANGULARITY ±1° MACH. SURF. 125

NO.	DATE	REVISIONS	E.C.A. NUMBER
3	10-28-94	RA•840	
2	08-23-94	RA•794	5 06-08-95 950090
1	01-26-94	RA•376	4 11-21-94 940139
0	09-08-93	PER•53	4 11-21-94 RA•879

SCALE 1/4

AMERICAN STERILIZER COMPANY
ERIE, PENNSYLVANIA

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AMSCO	DWN. JG	DES. JG	ENG. MEC	APVL. JJG
	DATE 09-07-93	DATE 09-07-93	DATE 09-10-93	DATE 09-10-93

TITLE STEAM GENERATOR, ELECTRIC
FIRST MADE FOR: 146660-103/106

DWG. NO. 146660-101/102 | 1 SHEET OF 1

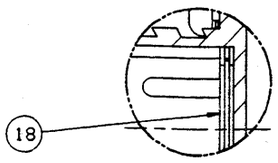
CAD DWG.

146657-837 | 1 SHEET 1

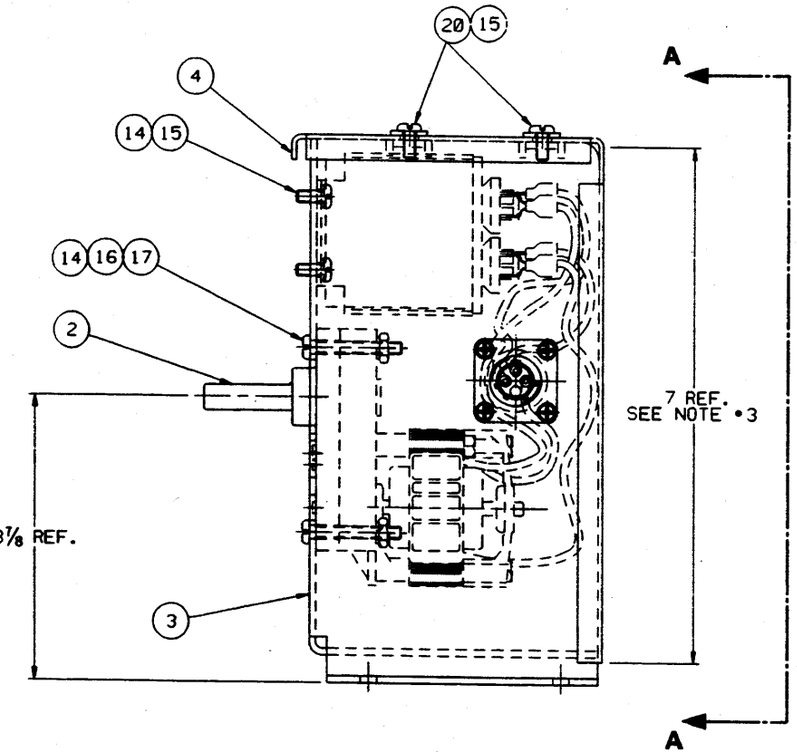
NOTES:

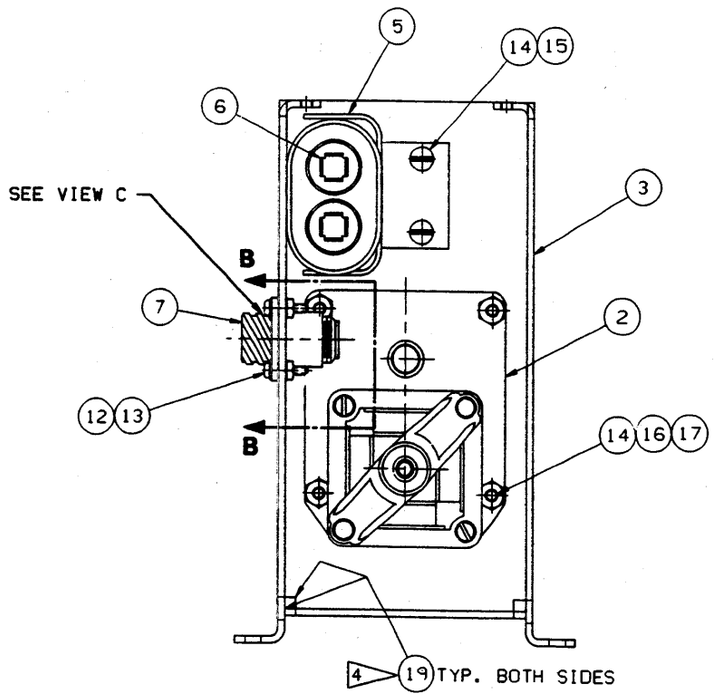
1. •18 AWG STRANDED TINNED COPPER WIRE, 16/30 STRANDING, PVC INSULATION, 300V, UL 1007 80°C, CSA TR-64 90°C, ALPHA •3055 OR EQUIVALENT.
2. CONNECTION METHOD 'A', ITEM 9, 3/16" STRIP
   CONNECTION METHOD 'B', ITEM 8, 5/16" STRIP
3. BEFORE SECURING MOTOR HOUSING COVER (ITEM •4) TO MOTOR HOUSING (ITEM •3), BE SURE INSIDE SURFACE OF COVER IS IN CONTACT WITH BACK EDGE OF HOUSING FOR ITS ENTIRE LENGTH.
4. APPLY A CONTINUOUS BEAD OF RTV-108 (TRANSLUCENT) SILICONE RUBBER ADHESIVE ITEM •19, (APPROX. 1/8" WIDE) TO BOTH INSIDE BOTTOM EDGES AND CORNERS OF MOTOR HOUSING ITEM •3.

QUANTITY	PART NUMBER	ITEM NO.	PART NAME	DESCRIPTION, MATERIAL	REV NO	REVISION DATE
XXX	146657-837	1	ASSEMBLY,	MOTOR HOUSING	6	12-26-95
1	136809-709	2	MOTOR, DOOR			
1	146657-824	3	HOUSING, MOTOR			
1	146657-825	4	COVER, MOTOR	HOUSING		
1	93918-036	5	BRKT.,CAPACITOR			
1	93918-050	6	CAPACITOR			
1	93909-232	7	RECEPTACLE	CPC		
4	90695-091	8	Q'DISCONNECT	22-18 AWG, .250 X .032		
3	129261-003	9	PIN, CONTACT			
1		10	WIRE, BROWN	SEE NOTE •1, (6"LG.)		
1		11	WIRE, RED	SEE NOTE •1, (6"LG.)		
4	93908-032	12	SCREW, SEMS	•4-40 X 1/2" LG.		
4	84121-001	13	NUT, HEX KEPS	•4-40		
6	124359-012	14	WASHER, LOCK	•8		
4	150276-001	15	SCREW, PAN HD.	•8-32 X 3/8" LG.		
4	129361-238	16	SCREW, PAN HD.	•8-32 X 1 1/4" LG.		
4	702497-020	17	NUT, HEX	•8-32		
1	129367-612	18	PERIPHERAL SEAL			
A/R		19	SILICONE, RTV	SEE NOTE •4		
2	27324-091	20	WASHER, FLAT	TEFLON 3/16 I.D. X 1/2 O.D. X 1/16 THK.		



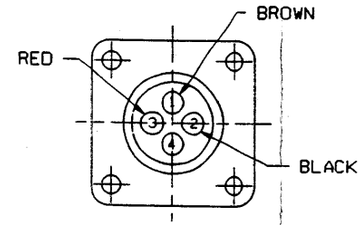
VIEW C



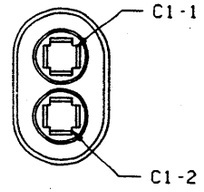


VIEW A-A

(COVER AND WIRE CONNECTIONS REMOVED FOR CLARITY)

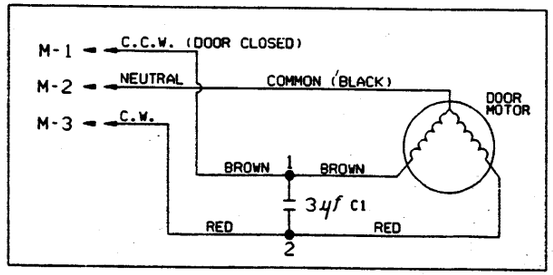


M
VIEW B-B
SCALE: 2X



END VIEW
CAPACITOR
C1

INACTIVATED



WIRING SCHEMATIC (REF.)

WIRE CHART					
COLOR	LENGTH	CONN. METHOD	FROM	CONN. METHOD	TO
RED	6"	A	M-3	B	C1-2
BROWN	6"	A	M-1	B	C1-1
BLACK	6"	-----	MOTOR	A	M-2
BROWN	6"	-----	MOTOR	B	C1-1
RED	6"	-----	MOTOR	B	C1-2

3	05-12-94	RA•595	6	12-26-95	950223
2	04-20-94	RA•542	5	09-29-95	950155
1	04-04-94	RA•502	4	09-01-94	940139
0	02-17-94	PER•88	4	09-01-94	RA•803

TOLERANCE STANDARD UNLESS OTHERWISE NOTED: FRACTIONAL +/-1/64 DECIMAL +/-.005 ANGULARITY +/-1° MACH.SURF. 125

AMSCO — AMERICAN STERILIZER COMPANY, ERIE, PENNSYLVANIA

DWN. RDE 03-28-94 | CHK. JMS 04-18-94 | ENG. FJZ 04-22-94 | MFG. VJM 04-22-94 | QA | DATE

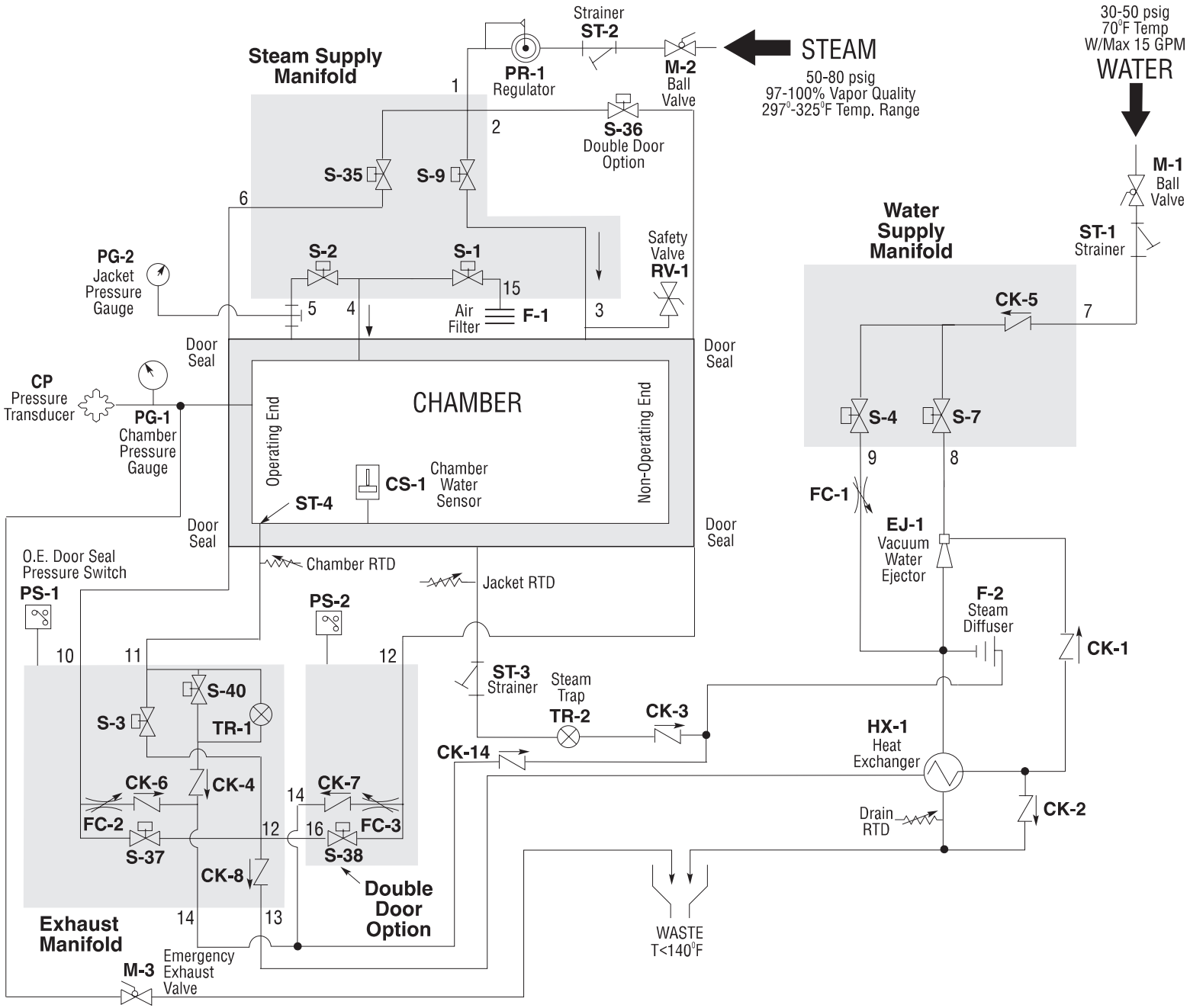
TITLE: ASSEMBLY, MOTOR HOUSING

FIRST MADE FOR:

DWG NO. 146657-837 | 1 SHEET 1

SCALE 1/1

CAD DWG.


Steam Supply Manifold
Strainer
ST-2
PR-1
Regulator
M-2
Ball
Valve
STEAM
50-80 psig
97-100% Vapor Quality
297°-325°F Temp. Range
30-50 psig
70°F Temp
W/Max 15 GPM
WATER
M-1
Ball
Valve
S-36
Double Door
Option
S-35
S-9
S-2
S-1
Safety
Valve
RV-1
PG-2
Jacket
Pressure
Gauge
Air
Filter
F-1
Water
Supply
Manifold
ST-1
Strainer
CK-5
Door
Seal
CHAMBER
Operating End
Non-Operating End
CP
Pressure
Transducer
PG-1
Chamber
Pressure
Gauge
CS-1
Chamber
Water
Sensor
ST-4
S-4
S-7
FC-1
EJ-1
Vacuum
Water
Ejector
F-2
Steam
Diffuser
CK-1
O.E. Door Seal
Pressure Switch
PS-1
Chamber RTD
Jacket RTD
PS-2
ST-3
Strainer
Steam
Trap
TR-2
CK-3
S-40
S-3
TR-1
CK-14
HX-1
Heat
Exchanger
CK-6
CK-4
CK-7
FC-2
FC-3
S-37
S-38
Drain
RTD
CK-2
CK-8
Double
Door
Option
Exhaust
Manifold
WASTE
T<140°F
Emergency
Exhaust
Valve
M-3

Piping Schematic - Century and Millennium Sterilizers

CK1,2,3	150822-354	Check Valve 1/2" NPT (swing)
	764319-608	Disc only
CK14	10278-091	Check Valve, 1/4" (swing)
CS1	93918-038	Chamber Water Sensor
EJ1	83924-001	Ejector, Water
F1	93909-592	Filter, Air 1/2" NPT
	129360-802	Element
F2	129367-567	Diffuser, Steam
FC1	83629-001	Flow Control
HX1	136809-844	Heat Exchanger
M1	93918-066	Valve, Manual 3/4" NPT, Water
M2	93918-065	Valve, Manual, 1/2" NPT, Steam
M3	93918-212	Valve, Manual, 1/4" NPT, Dump
PG1	7872-051	Gauge, Chamber (O.E. & N.O.E.)
PG2	7871-051	Gauge, Jacket
PR1	136809-750	Valve, Pressure Regulator, 3/8" NPT
	754359-001	Kit, Repair
PS1,2	83865-001	Pressure Switch, O.E., N.O.E.
		Door Seal
PT	136809-787	Pressure Transducer
RV1	93918-013	Valve, Relief, 1/2" NPT, 50 psig
S36	93911-986	Valve, Sol. 1/8" (N.O.E. Door Seal)
	764326-479	Kit, Repair
	764323-941	Coil
ST1	47708-091	Strainer, Water, 3/4" NPT
	754616-091	Screen, SARCO
	764326-673	Screen, United Brass
ST2, ST3	150828-459	Strainer, Steam, 1/2" NPT
	764326-663	Screen, Conbraco
	764326-727	O'Ring, Conbraco
	764317-906	Screen, SARCO
ST4	93918-035	Strainer, Chamber Drain
TP	93911-351	Temperature Probe
TR2	129222-001	Steam Trap, Jacket, 1/2" NPT
	764080-001	Kit, Repair
W	146660-109	Funnel, Waste

	146657-787	**Manifold, Steam Supply Assembly**
	764326-475	Manifold Repair Kit (Less seats)
	764326-476	Seat Package (Complete)
S1	N/A	Valve, Solenoid (Air Break)
	764326-477	Kit, Repair
	764326-632	Coil
	764326-699	Seat
S2, S9	N/A	Valve, Solenoid (Steam to Chamber/ Steam to Jacket)
	764326-478	Kit, Repair
	764323-941	Coil
	764326-698	Seat
S35	N/A	Valve, Solenoid (O.E. Door Seal)
	764326-479	Kit, Repair
	764323-941	Coil
	764326-700	Seat

	146657-788	**Manifold, Exhaust Assembly**
	764326-480	Manifold Repair Kit (Less seats)
	764326-481	Seat Package (Complete)
S3	N/A	Valve, Solenoid (Fast Exhaust)
	764326-482	Kit, Repair
	764323-941	Coil
	764326-696	Seat
S37	N/A	Valve, Solenoid (O.E. Door Exhaust)
	764326-479	Kit, Repair
	764323-941	Coil
	764326-700	Seat
S40	N/A	Valve, Solenoid
	764326-483	Kit, Repair
	764323-941	Coil
	764326-701	Seat
TR1	764326-641	Steam Trap, Chamber (Cap only)
	764080-001	Kit, Repair
CK4,6, FC2		Check Valve/Flow Control Valve
	764326-485	Kit, Repair
	764326-702	Seat (CK4, CK6)
CK8		Check Valve
	764326-484	Kit, Repair
	764326-697	Seat

	146657-789	**Manifold, Water Supply Assembly**
	764326-619	Manifold Repair Kit (Less seats)
	764326-620	Seat Package (Complete)
S4, S7	N/A	Valve, Solenoid (Cooling Water/ Vacuum Water)
	764326-621	Kit, Repair
	764323-940	Coil
	764326-696	Seat
CK5	N/A	Check Valve
	764326-622	Kit, Repair
	764326-697	Seat

	136809-791	**Manifold, Double Door Option**
	764326-486	Manifold Repair Kit (Less seats)
	764326-487	Seat Package (Complete)
S38	N/A	Valve, Solenoid (N.O.E. Door Exhaust)
	764326-479	Kit, Repair
	764326-941	Coil
	764326-700	Seat
FC3, CK7	N/A	Flow Control Valve/Check Valve
	764326-485	Kit, Repair
	764326-702	Seat (CK7)

ILLUSTRATED PARTS BREAKDOWN

Century™ Series
and Millennium™ Sterilizers

(05/11/98) **P-129367-409**

Rev. 5

STERIS®

STERIS Corporation
5960 Heisley Road
Mentor, OH 44060-1834 ▪ USA
440-354-2600 ▪ 800-548-4873
In Canada, 800-661-3937

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In no case, whether as a result of a Breach of Contract, Breach of Warranty or Tort (including STERIS's or customer's willful acts or negligence or strict liability) shall STERIS or customer be liable to the other for any consequential or incidental damages incurred by the other, including, but not limited to, loss of revenue, profits or goodwill. However, nothing contained in this agreement is intended to relieve either STERIS or customer from claims, liability, damages or expenses resulting from bodily injury, including death, or from property damage incurred due to the willful acts, the negligence of or the strict liability of that party.

STERIS agrees to defend, indemnify and hold customer harmless from any and all claims, liability, damages or expenses due to personal injuries, including death, to employees of STERIS and customer and to third parties and for property damage to the extent of the willful acts of the negligence of STERIS or the strict liability of STERIS caused by the acts or omissions of STERIS. Customer agrees to defend, indemnify and hold STERIS harmless from any and all claims, liability, damages or expenses due to personal injuries, including death, to employees of customer and STERIS and to third parties and from property damage to the extent of the willful acts or the negligence of customer or the strict liability of customer caused by the acts or omissions of customer.

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A WORD FROM STERIS CORPORATION

Service Information

This manual contains important information on proper use and maintenance of this sterilizer. All operators and department heads are urged to carefully review and become familiar with the warnings, cautions and instructions contained herein. This sterilizer is specifically designed to process goods using only the cycles as specified in this manual. If there is any doubt about a specific material or product, contact the manufacturer of the product for the recommended sterilization technique.

ADVISORY

A thorough preventive maintenance program is essential to safe and proper sterilizer operation. You are encouraged to contact STERIS Engineering Service concerning our Preventive Maintenance Agreement. Under terms of this agreement, preventive maintenance, adjustments, and replacement of worn parts are done on a scheduled basis to assure equipment performance at peak capability and to help avoid untimely or costly interruptions. STERIS Engineering Service maintains a nationwide staff of well-equipped, factory-trained technicians to provide this service, as well as expert repair services. Contact your STERIS Engineering Service representative for details.

STERIS Corporation carries a complete line of accessories for this unit to simplify, organize and assure sterility of the sterilization process. Instrument trays, wraps, and biological/chemical monitoring systems are all available to fulfill your facility's processing needs. A STERIS representative will gladly review these with you.

STERIS HAS OFFICES WORLDWIDE

Germany	49 7771 9332 0
Hong Kong	852 2 583 3623
Italy	39 0141 590429
Japan	81 78 252 1901
Korea	82 2 554 1661
Latin America	1 305 442 8202
Singapore	65 841 7677
Spain	3491 663 7818
United Kingdom	44 1 608 811 822

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ILLUSTRATED PARTS BREAKDOWN

1

Significant assemblies and components of the Century™ Series and Millennium™ Sterilizers are illustrated and identified in this booklet. The part number, description and schematic designation (where applicable) are given. Each indentation in the description represents the assembly level.

This manual is provided to STERIS customers and STERIS service technicians to enhance the ordering of maintenance parts for Century Series and Millennium sterilizers. This manual includes parts required for routine calibration of the machine by a qualified service technician. To order maintenance parts or identify hardware not found in this manual, please call STERIS Customer Service at (800) 333-8848 for assistance.

The customer maintenance person should refer to the service and maintenance procedures in the sterilizer operator or maintenance manual for installation of parts which may require special attention or adjustments during installation.

How to Use the Illustrated Parts List:

1. Determine the function and application of the part required. From the illustration, obtain the item number assigned to the desired part. Refer to the accompanying tabular list (usually on the facing page) for the STERIS order number and description for the part.

Special Tools Required:

The following tools are required to perform routine maintenance on the sterilizer:

- 3/8" allen wrench 31354-091
- Socket 1-1/16" 1/2 drive, 12 points 764326-557
- Wrench, combination, 1" size 764326-558
- PLC chip remover 764326-559 (necessary only to remove EPROM chip)

STERIS Preventive Maintenance (PM) Packs

STERIS Corporation provides PM packs grouping together repair parts needed to perform a proper preventive maintenance (PM) on your sterilizer. Using these packs, it is possible to order all the repair kits for a sterilizer with one part number. The PM packs are described on the following pages.

PM Pack - Steam Manifold Repair Kit (less seats) 764326-475

- S1 Repair Kit 764326-477
- S2, S9 Repair Kit 764326-478
- S35 Repair Kit 764326-479

Steam manifold parts not included in PM packs. Order as required:

- Seat Package (complete - 1 of each) 764326-476

PM Pack - Exhaust Manifold Repair Kit (less seats) 764326-480

- S3 Repair Kit 764326-482
- S40 Repair Kit 764326-483
- S37 Repair Kit 764326-479
- CK4, CK6 and FC2 Repair Kit 764326-485
- CK8 Repair Kit 764326-484

Exhaust manifold parts not included in PM packs. Order as required:

- Cap only for TR1 764326-641
- Seat Package (complete - 1 of each) 764326-481

PM Pack - Water Manifold Repair Kit (less seats) 764326-619

- S4, S7 Repair Kit 764326-621
- CK5 764326-622

Water manifold parts not included in PM packs. Order as required:

- Seat Package (complete - 1 of each) 764326-620

PM Pack - Double Door Manifold Repair Kit (less seats) 764326-486

- S38 Repair Kit 764326-479
- CK7 Repair Kit 764326-485
- FC3 Repair Kit 764326-485

Double door manifold parts not included in PM packs. Order as required:

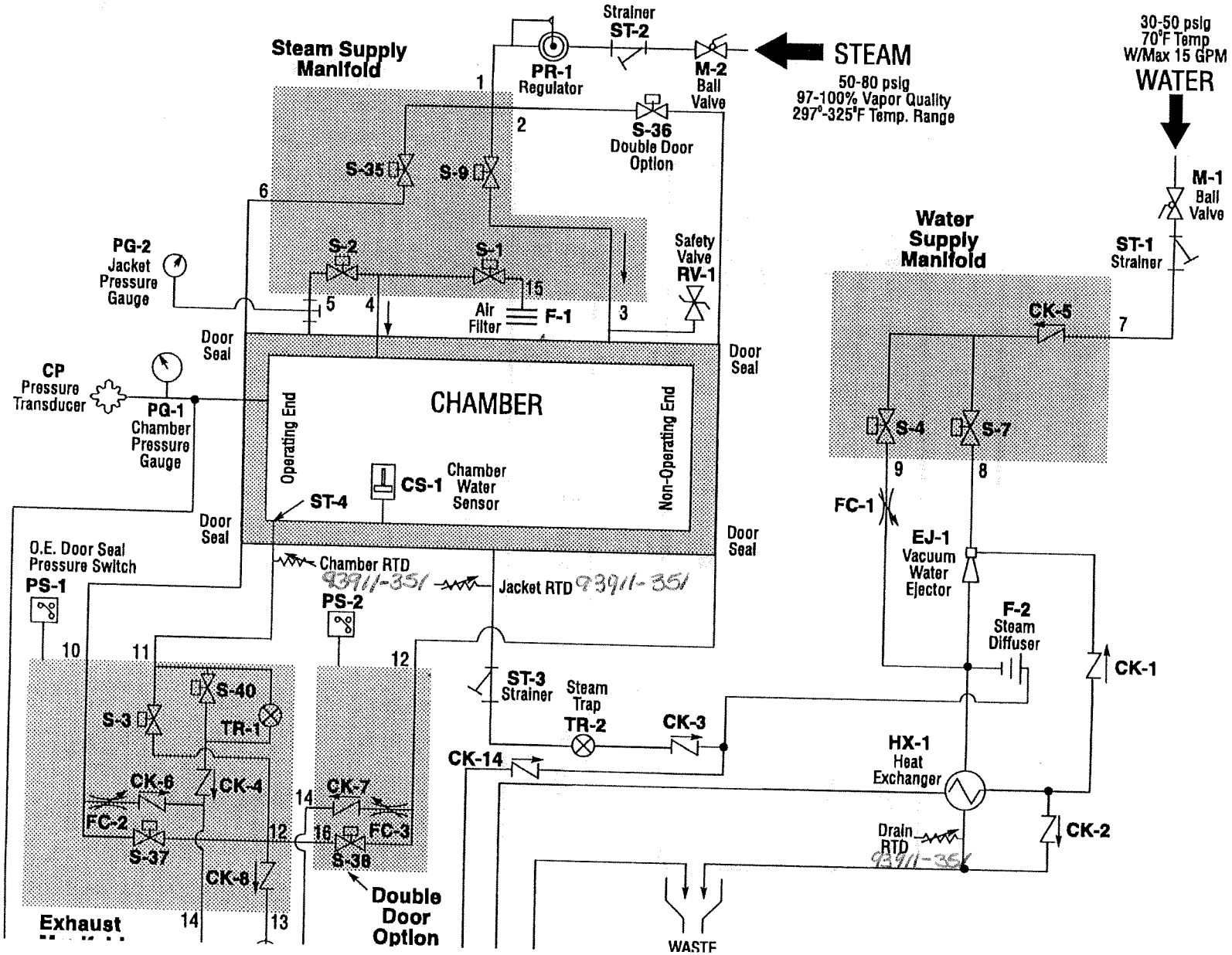
- Seat Package (complete - 1 of each) 764326-487

PM Pack - Miscellaneous 764326-646

- Air Filter 129360-802
- F3 Fuse, 5A 764317-463
- F1, F2 Fuse, 4A, 250V 764317-825
- TR1, TR2 (2) 764080-001
- CK1, CK2, CK3 (3) 150822-354
- CK14, 1/4" 10278-091

PM Pack - PR1 Pressure Regulator Valve

- Repair Kit 754359-001


Steam Supply Manifold
Strainer ST-2
PR-1 Regulator
M-2 Ball Valve
STEAM
50-80 psig
97-100% Vapor Quality
297°-325°F Temp. Range
30-50 psig
70°F Temp
W/Max 15 GPM
WATER
M-1 Ball Valve
S-36 Double Door Option
S-35
S-9
S-2
S-1
PG-2 Jacket Pressure Gauge
Safety Valve RV-1
Air Filter
F-1
Water Supply Manifold
ST-1 Strainer
CK-5
S-4
S-7
Door Seal
CP Pressure Transducer
PG-1 Chamber Pressure Gauge
CHAMBER
Operating End
Non-Operating End
CS-1 Chamber Water Sensor
ST-4
FC-1
EJ-1 Vacuum Water Ejector
O.E. Door Seal Pressure Switch
PS-1
Chamber RTD 93911-351
Jacket RTD 93911-351
PS-2
F-2 Steam Diffuser
CK-1
ST-3 Strainer
Steam Trap TR-2
CK-3
CK-14
HX-1 Heat Exchanger
S-40
S-3
TR-1
CK-6
CK-4
CK-7
FC-2
FC-3
S-37
S-38
CK-8
Drain RTD 93911-351
CK-2
Exhaust
Double Door Option
WASTE

Piping Schematic - Century and Millennium Sterilizers

CK1,2,3	150822-354	Check Valve 1/2" NPT (swing)
	764319-608	Disc only
CK14	10278-091	Check Valve, 1/4" (swing)
CS1	93918-038	Chamber Water Sensor
EJ1	83924-001	Ejector, Water
F1	93909-592	Filter, Air 1/2" NPT
	129360-802	Element
F2	129367-567	Diffuser, Steam
FC1	83629-001	Flow Control
HX1	136809-844	Heat Exchanger
M1	93918-066	Valve, Manual 3/4" NPT, Water
M2	93918-065	Valve, Manual, 1/2" NPT, Steam
M3	93918-212	Valve, Manual, 1/4" NPT, Dump
PG1	7872-051	Gauge, Chamber (O.E. & N.O.E.)
PG2	7871-051	Gauge, Jacket
PR1	136809-750	Valve, Pressure Regulator, 3/8" NPT
	754359-001	Kit, Repair
PS1,2	83865-001	Pressure Switch, O.E., N.O.E.
		Door Seal
PT	136809-787	Pressure Transducer
RV1	93918-013	Valve, Relief, 1/2" NPT, 50 psig
S36	93911-986	Valve, Sol. 1/8" (N.O.E. Door Seal)
	764326-479	Kit, Repair
	764323-941	Coil
ST1	47708-091	Strainer, Water, 3/4" NPT
	754616-091	Screen, SARCO
	764326-673	Screen, United Brass
ST2, ST3	150828-459	Strainer, Steam, 1/2" NPT
	764326-663	Screen, Conbraco
	764326-727	O'Ring, Conbraco
	764317-906	Screen, SARCO
ST4	93918-035	Strainer, Chamber Drain
TP	93911-351	Temperature Probe
TR2	129222-001	Steam Trap, Jacket, 1/2" NPT
	764080-001	Kit, Repair
W	146660-109	Funnel, Waste

	146657-787	**Manifold, Steam Supply Assembly**
	764326-475	Manifold Repair Kit (Less seats)
	764326-476	Seat Package (Complete)
S1	N/A	Valve, Solenoid (Air Break)
	764326-477	Kit, Repair
	764326-632	Coil
	764326-699	Seat
S2, S9	N/A	Valve, Solenoid (Steam to Chamber/ Steam to Jacket)
	764326-478	Kit, Repair
	764323-941	Coil
	764326-698	Seat
S35	N/A	Valve, Solenoid (O.E. Door Seal)
	764326-479	Kit, Repair
	764323-941	Coil
	764326-700	Seat

	146657-788	**Manifold, Exhaust Assembly**
	764326-480	Manifold Repair Kit (Less seats)
	764326-481	Seat Package (Complete)
S3	N/A	Valve, Solenoid (Fast Exhaust)
	764326-482	Kit, Repair
	764323-941	Coil
	764326-696	Seat
S37	N/A	Valve, Solenoid (O.E. Door Exhaust)
	764326-479	Kit, Repair
	764323-941	Coil
	764326-700	Seat
S40	N/A	Valve, Solenoid
	764326-483	Kit, Repair
	764323-941	Coil
	764326-701	Seat
TR1	764326-641	Steam Trap, Chamber (Cap only)
	764080-001	Kit, Repair
CK4,6, FC2		Check Valve/Flow Control Valve
	764326-485	Kit, Repair
	764326-702	Seat (CK4, CK6)
CK8		Check Valve
	764326-484	Kit, Repair
	764326-697	Seat

	146657-789	**Manifold, Water Supply Assembly**
	764326-619	Manifold Repair Kit (Less seats)
	764326-620	Seat Package (Complete)
S4, S7	N/A	Valve, Solenoid (Cooling Water/ Vacuum Water)
	764326-621	Kit, Repair
	764323-940	Coil
	764326-696	Seat
CK5	N/A	Check Valve
	764326-622	Kit, Repair
	764326-697	Seat

	136809-791	**Manifold, Double Door Option**
	764326-486	Manifold Repair Kit (Less seats)
	764326-487	Seat Package (Complete)
S38	N/A	Valve, Solenoid (N.O.E. Door Exhaust)
	764326-479	Kit, Repair
	764326-941	Coil
	764326-700	Seat
FC3, CK7	N/A	Flow Control Valve/Check Valve
	764326-485	Kit, Repair
	764326-702	Seat (CK7)

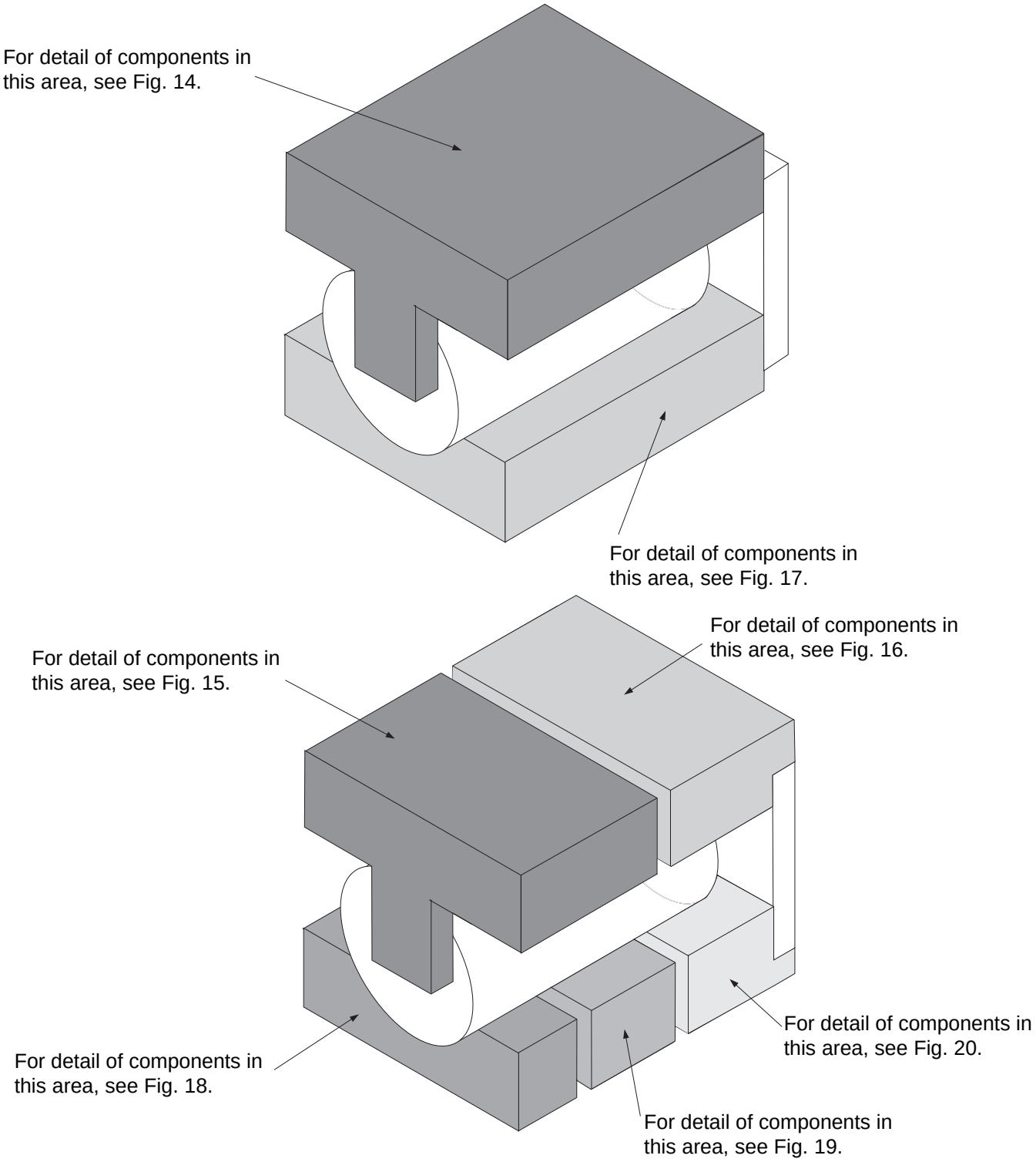

For detail of components in this area, see Fig. 14.
For detail of components in this area, see Fig. 17.
For detail of components in this area, see Fig. 16.
For detail of components in this area, see Fig. 15.
For detail of components in this area, see Fig. 20.
For detail of components in this area, see Fig. 18.
For detail of components in this area, see Fig. 19.

Figure 1. Single Door Component Map, Single Door Fittings Map

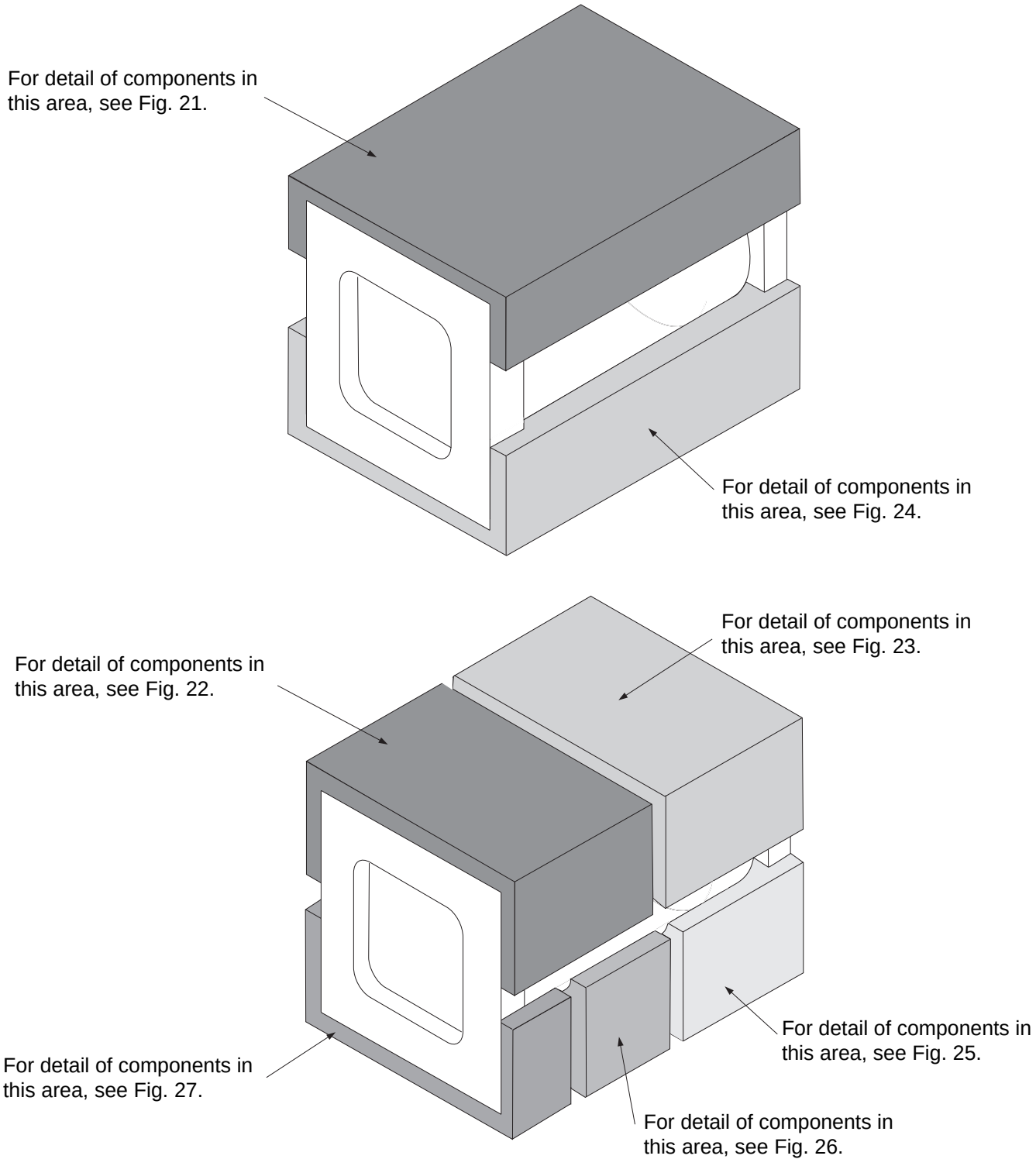

For detail of components in this area, see Fig. 21.
For detail of components in this area, see Fig. 24.
For detail of components in this area, see Fig. 23.
For detail of components in this area, see Fig. 22.
For detail of components in this area, see Fig. 25.
For detail of components in this area, see Fig. 27.
For detail of components in this area, see Fig. 26.

Figure 2. Double Door Component Map, Double Door Fittings Map

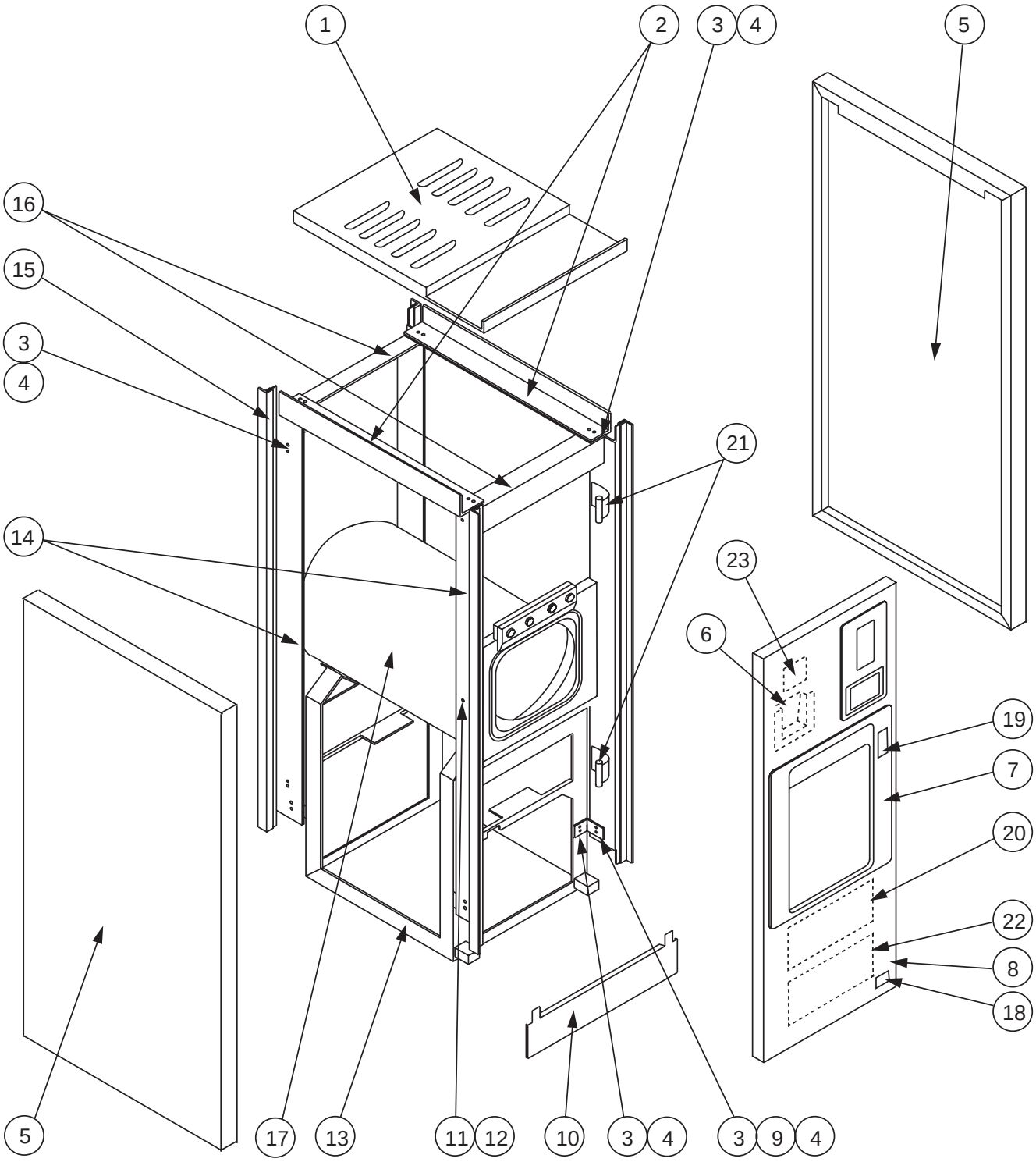


Figure 3. Frame Components and Panels - 16" Single Door

CENTURY AND MILLENNIUM STERILIZERS

Frame Components and Panels - 16" Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
	146657 -851	CABINET PACKAGE, SINGLE DOOR, 16" - CENTURY
	146665 -301	CABINET PACKAGE, SINGLE DOOR, 16" - MILLENNIUM
1	146657 -807	PANEL, TOP, S.D. CABINET
2	136809 -811	HANGER, PANEL
3	129360 -809	BOLT, FLNG LK, 3/8" - 16 x 7/8" LG.
4	129360 -014	NUT, FLNG LK, 3/8" - 16
5	146657 -811	PANEL, SIDE, S.D., CABINET (FREESTANDING) - CENTURY, S.S.
	93922 -444	PANEL, SIDE, S.D., CABINET (FREESTANDING) - MILLENNIUM, PAINTED
6	146660 -190	RACK, LITERATURE
7	146660 -198	TRIM BEZEL - CENTURY
	93922 -450	TRIM BEZEL - MILLENNIUM
8	146657 -805	PANEL, FRONT - CENTURY, STAINLESS STEEL
	93922 -448	PANEL, FRONT - MILLENNIUM, PAINTED
9	93918 -030	MTG. BRACKET, VERT. SUPPORT-STAND
10	146657 -806	KICK PANEL - CENTURY, BLACK
	146665 -305	KICK PANEL - MILLENNIUM, STAINLESS STEEL
11	10470 -061	LOCKWASHER, HELICAL .390 ID x .553 OD x .125 THK
12	124268 -027	SCREW, HXHD, 3/8" - 16 x 5/8" LG.
13	146660 -199	STAND ASSEMBLY
14	146657 -804	VERTICAL SUPPORT
15	93918 -033	GASKET, TRIM
16	93918 -027	CROSSBRACE
17	146657 -868	INSULATION PACKAGE, S.D.
18	93918 -218	LABEL, DOOR (OPEN/CLOSE)
19	136809 -739 *	LABEL, WARNING BURSTING BOTTLE
20	136809 -808	LABEL, SCHEMATIC/PARTS
21	136809 -727	HINGE, TOP & BOTTOM
22	136809 -810	LABEL, GENERATOR/PARTS - GENERATOR (ELECTRIC UNITS ONLY)
23	93918 -466	DECAL, IMPORTANT
	93918 -456	BRACKET, STRIKE (Not Shown)
	84298 -001	CATCH, MAGNETIC (Not Shown)
	93918 -220	EMERGENCY TOOL (Not Shown)
	93918 -452	LABEL, EMERGENCY TOOL (Not Shown)

** Used on Century Lab/Sci units and on units with liquid cycle option.*

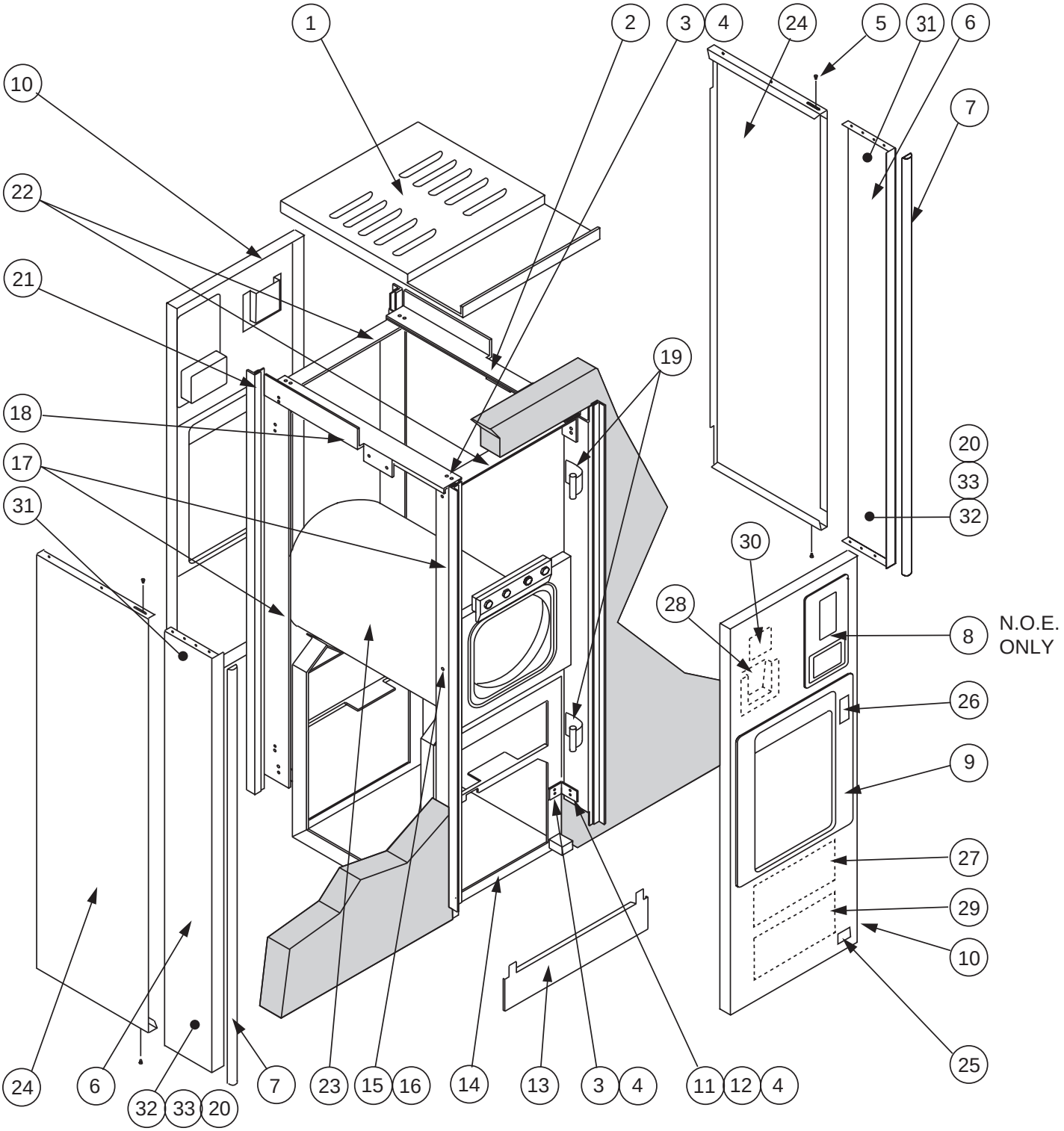


Figure 4. Frame Components and Panels - 16" Double Door

CENTURY AND MILLENNIUM STERILIZERS

Frame Components and Panels - 16" Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848		
ITEM NO.	PART NUMBER	DESCRIPTION
	146657 -852	CABINET PACKAGE, DOUBLE DOOR, 16" - CENTURY
	146665 -302	CABINET PACKAGE, DOUBLE DOOR, 16" - MILLENNIUM
1	146657 -807	PANEL, TOP
2	146660 -178	HANGER, PANEL, R.H.
3	129360 -809	BOLT, FLNG LK, 3/8" - 16 x 7/8" LG.
4	129360 -014	NUT, FLNG LK, 3/8" - 16
5	24840 -061	SCREW, RD. HD, #10-32 x 1/2" LG., SELF TAP
6	146657 -990	PANEL, SIDE, TELESCOPING - CENTURY
	146665 -300	PANEL, SIDE, TELESCOPING - MILLENNIUM
7	129367 -471	GASKET
8	136809 -736	COVER, DOOR OPENING - CENTURY
	93922 -454	COVER, DOOR OPENING - MILLENNIUM
9	146660 -198	TRIM BEZEL
10	146657 -805	PANEL, FRONT/REAR - CENTURY
	93922 -448	PANEL, FRONT/REAR - MILLENNIUM
11	129360 -013	BOLT, FLNG LK, 3/8" - 16 x 3/4" LG.
12	93918 -030	MTG. BRACKET, VERT. SUPPORT-STAND
13	146657 -806	KICK PANEL - CENTURY, BLACK
	146665 -305	KICK PANEL - MILLENNIUM, STAINLESS STEEL
14	146660 -199	STAND ASSEMBLY
15	10470 -061	LOCKWASHER, HELICAL .390 ID x .553 OD X .125 THK
16	124268 -027	SCREW, HXHD, 3/8" - 16 x 5/8" LG.
17	146657 -804	VERTICAL SUPPORT
18	146660 -177	HANGER, PANEL, L.H.
19	136809 -727	HINGE, TOP & BOTTOM
20	129363 -176	NUT, FLNG LOCK, 1/4" - 20
21	93918 -033	GASKET, TRIM
22	93918 -027	CROSSBRACE
23	146657 -869	INSULATION PACKAGE
24	146660 -179	PANEL, SIDE - D.D. CABINET, REC. 1 WALL - CENTURY
	93922 -445	PANEL, SIDE - D.D. CABINET, REC. 1 WALL - MILLENNIUM
25	93918 -218	LABEL, DOOR (OPEN/CLOSE)
26	136809 -739 *	LABEL, WARNING BURSTING BOTTLE
27	136809 -808	LABEL, SCHEMATIC/PARTS
28	146660 -190	RACK, LITERATURE
29	136809 -810	LABEL, GENERATOR/PARTS - GENERATOR (ELECTRIC UNITS ONLY)
30	93918 -466	DECAL, IMPORTANT
31	150828 -312	SCREW FLG. LOCK, 1/4 - 20 - 1/2 LG.
32	51851 -061	SPACER
33	129361 -716	SCREW FLG. LOCK, 1/4 - 20 x 1
	84298 -001	CATCH, MAGNETIC (Not Shown)
	93918 -220	EMERGENCY TOOL (Not Shown)
	93918 -452	LABEL, EMERGENCY TOOL (Not Shown)

** Used on Century Lab/Sci units and on units with liquid cycle option.*

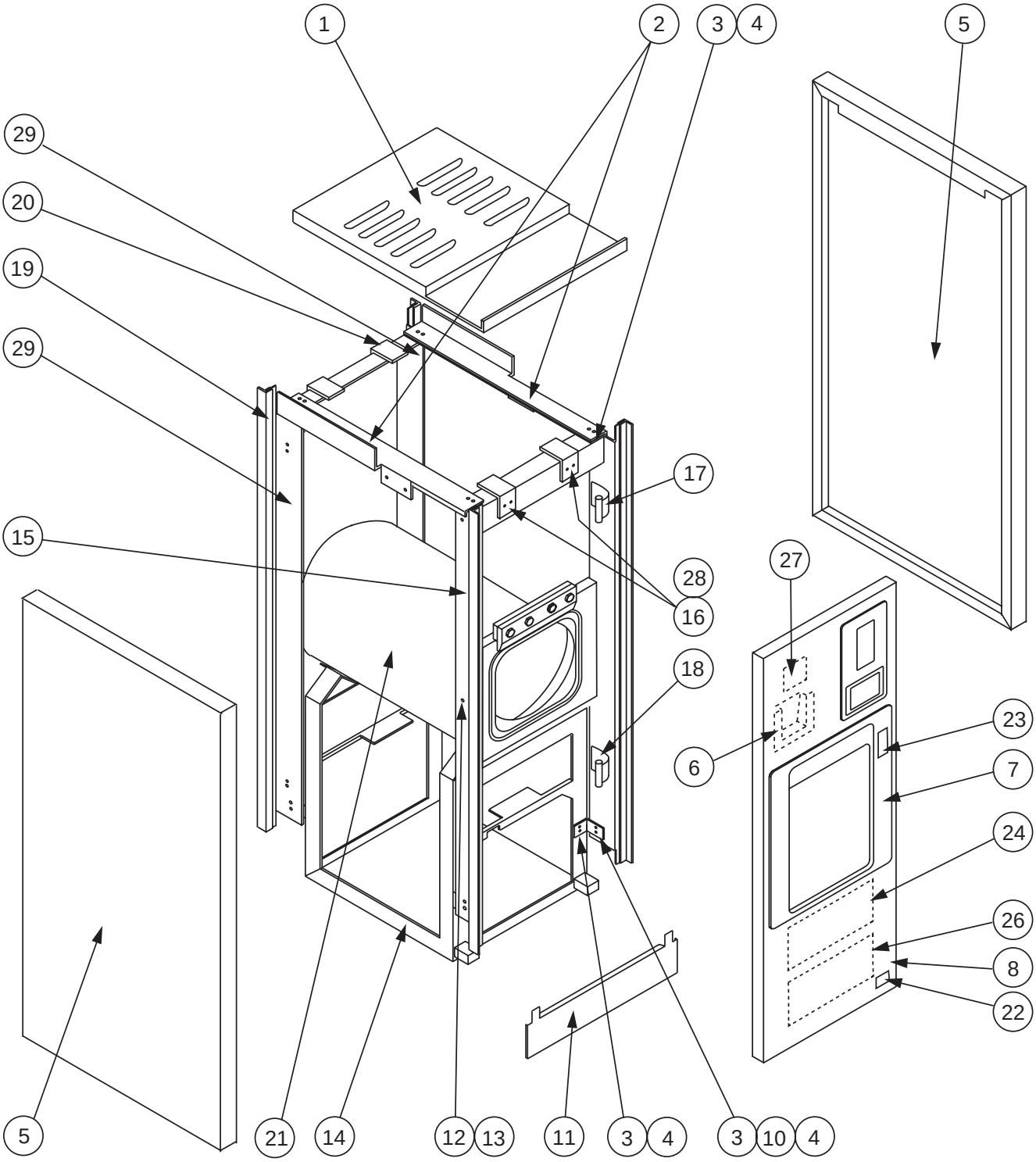


Figure 5. Frame Components and Panels - 20" Single Door

CENTURY AND MILLENNIUM STERILIZERS

Frame Components and Panels - 20" Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
	146657 -997	CABINET PACKAGE, SINGLE DOOR, 20" - CENTURY
	146665 -303	CABINET PACKAGE, SINGLE DOOR, 20" - MILLENNIUM
1	146657 -747	PANEL, TOP, S.D., CABINET
2	146657 -985	HANGER, PANEL, L.H.
	146657 -986	HANGER, PANEL, R.H.
3	129360 -809	BOLT, FLNG LK, 3/8" - 16 x 7/8" LG.
4	129360 -014	NUT, FLNG LK, 3/8" - 16
5	146657 -993	PANEL, SIDE, S.D., CABINET (FREESTANDING) - CENTURY
	93922 -446	PANEL, SIDE, S.D., CABINET (FREESTANDING) - MILLENNIUM
6	146660 -190	RACK, LITERATURE
7	146660 -197	TRIM BEZEL - CENTURY
	93922 -451	TRIM BEZEL - MILLENNIUM
8	146657 -981	PANEL, FRONT - CENTURY
	93922 -449	PANEL, FRONT - MILLENNIUM
9		NOT USED
10	93918 -221	MTG. BRACKET, VERT. SUPPORT-STAND
11	146657 -982	KICK PANEL - CENTURY
	146665 -306	KICK PANEL - MILLENNIUM
12	10470 -061	LOCKWASHER, HELICAL .390 ID x .553 OD x .125 THK
13	124268 -027	SCREW, HXHD, 3/8" - 16 x 5/8" LG.
14	146660 -335	STAND ASSEMBLY
15	146657 -979	VERTICAL SUPPORT, L.H., O.E.
	146657 -980	VERTICAL SUPPORT, R.H., O.E.
16	93918 -223	SUPPORT, TOP PANEL
17	136809 -788	TOP HINGE
18	136809 -790	BOTTOM HINGE
19	93918 -089	GASKET, TRIM
20	146657 -984	CROSSBRACE
21	146657 -870	INSULATION PACKAGE, S.D.
22	93918 -218	LABEL, DOOR (OPEN/CLOSE)
23	136809 -739 *	LABEL, WARNING BURSTING BOTTLE
24	136809 -808	LABEL, SCHEMATIC/PARTS
25		NOT USED
26	136809 -810	LABEL, GENERATOR/PARTS - GENERATOR (ELECTRIC UNITS ONLY)
27	93918 -466	DECAL, IMPORTANT
28	150828 -312	SCREW FLG. LOCK, 1/4 - 20 x 1/2 LG.
29	146657 -991	VERTICAL SUPPORT, REAR R.H.
	84298 -001	CATCH, MAGNETIC (Not Shown)
	93918 -220	EMERGENCY TOOL (Not Shown)
	93918 -452	LABEL, EMERGENCY TOOL (Not Shown)
		** Used on Century Lab/Sci units and on units with liquid cycle option.*

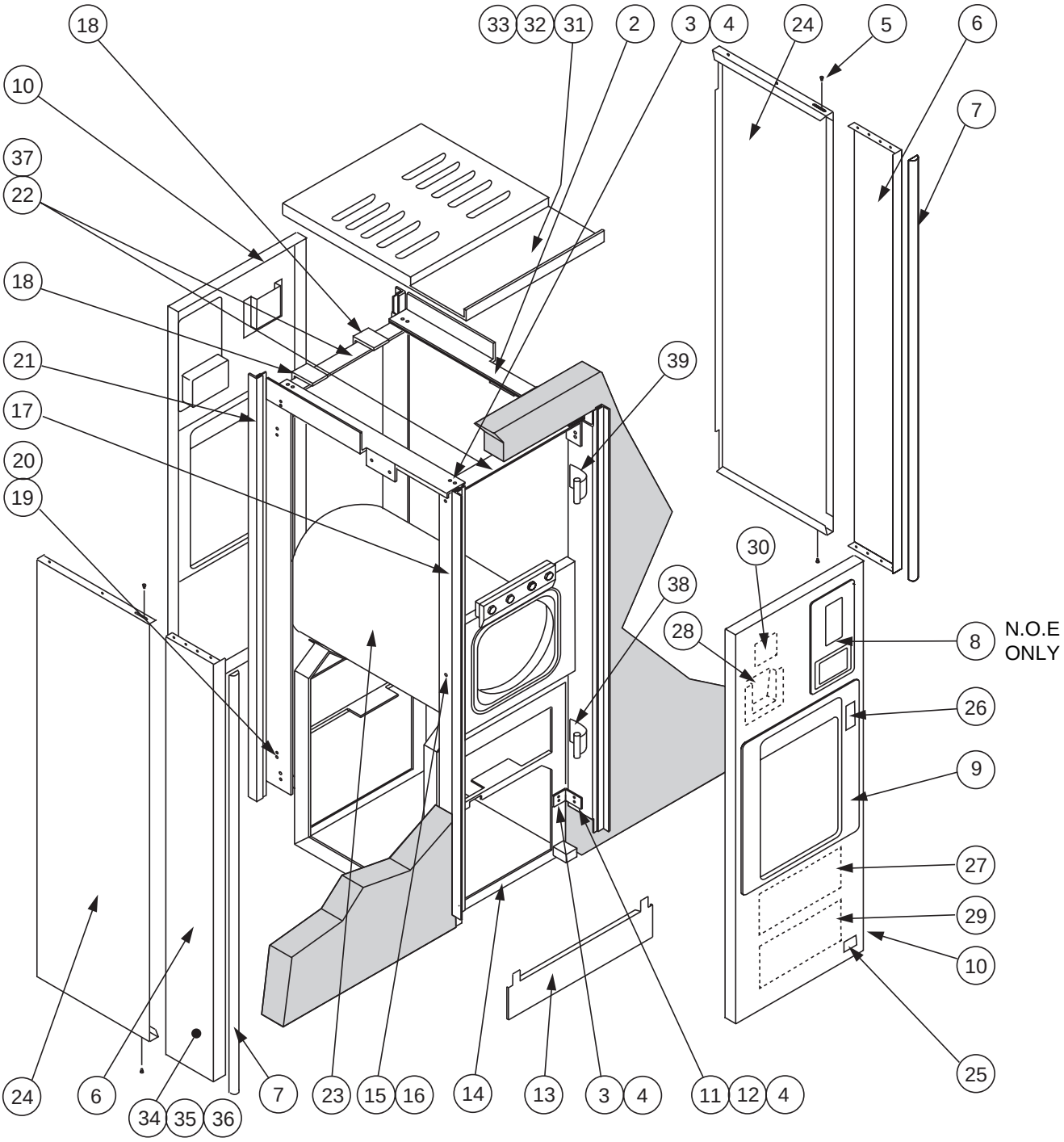


Figure 6. Frame Components and Panels - 20" Double Door

CENTURY AND MILLENNIUM STERILIZERS

Frame Components and Panels - 20" Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
	146657 -996	CABINET PACKAGE, DOUBLE DOOR, 20" - CENTURY
	146665 -304	CABINET PACKAGE, DOUBLE DOOR, 20" - MILLENNIUM
1	146657 -987	PANEL, TOP
2	146657 -985	HANGER, PANEL, L.H.
	146657 -986	HANGER, PANEL, R.H.
3	129360 -809	BOLT, FLNG LK, 3/8" - 16 x 7/8" LG.
4	129360 -014	NUT, FLNG LK, 3/8" - 16
5	24840 -061	SCREW, RD. HD, #10-32 x 1/2" LG., SELF TAP
6	146657 -990	PANEL, SIDE, TELESCOPING - CENTURY
	146665 -300	PANEL, SIDE, TELESCOPING - MILLENNIUM
7	129367 -471	GASKET
8	136809 -736	COVER, DOOR OPENING
9	146660 -197	TRIM BEZEL, 20" - CENTURY
	93922 -451	TRIM BEZEL, 20" - MILLENNIUM
10	146657 -981	PANEL, FRONT/REAR - CENTURY
	93922 -449	PANEL, FRONT/REAR - MILLENNIUM
11	129360 -013	BOLT, FLNG LK, 3/8" - 16 x 3/4" LG.
12	93918 -221	MTG. BRACKET, VERT. SUPPORT-STAND
13	146657 -982	KICK PANEL - CENTURY
	146665 -306	KICK PANEL - MILLENNIUM
14	146660 -335	STAND ASSEMBLY
15	10470 -061	LOCKWASHER, HELICAL .390 ID x .553 OD X .125 THK
16	124268 -027	SCREW, HXHD, 3/8" - 16 x 5/8" LG.
17	146657 -979	VERTICAL SUPPORT, L.H.
	146657 -980	VERTICAL SUPPORT, R.H.
18	93918 -223	HANGER, SUPPORT
19	129360 -011	BOLT, FLNG LK, 1/4" - 20 x 5/8" LG.
20	129360 -015	NUT, FLNG LK, 1/4" - 20
21	93918 -089	GASKET, TRIM
22	146657 -984	CROSSBRACE
23	146657 -871	INSULATION PACKAGE, D.D.
24	146657 -989	PANEL, SIDE - D.D. CABINET, REC. 1 WALL - CENTURY
	93922 -447	PANEL, SIDE - D.D. CABINET, REC. 1 WALL - MILLENNIUM
25	93918 -218	LABEL, DOOR (OPEN/CLOSE)
26	136809 -739 *	LABEL, WARNING BURSTING BOTTLES
27	136809 -808	LABEL, SCHEMATIC
28	146660 -190	RACK, LITERATURE
29	136809 -810	LABEL GENERATOR (ELECTRIC UNITS ONLY)
30	93918 -466	DECAL, IMPORTANT
31	146657 -988	PANEL TOP EXTENSION D.D.
32	150743 -163	SCREW TRUSS HD #10-32 x 1/2 LG.
33	150822 -093	SPEED-NUT #10-32
34	129361 -716	SCREW, FLG. LOCK 1/4-20 x 1 LG.
35	129363 -176	NUT, FLG. LOCK 1/4-20 LOW HD.
36	51851 -061	SPACER
37	150828 -312	SCREW FLG. LOCK 1/4-20 x1/2 LG.
38	136809 -790	BOTTOM HINGE
39	136809 -788	TOP HINGE
	84298 -001	CATCH MAGNET (Not Shown)
	93918 -220	EMERGENCY TOOL (Not Shown)
	93918 -452	LABEL, EMERGENCY TOOL (Not Shown)

** Used on Lab/Sci units and on units with liquid cycle option.*

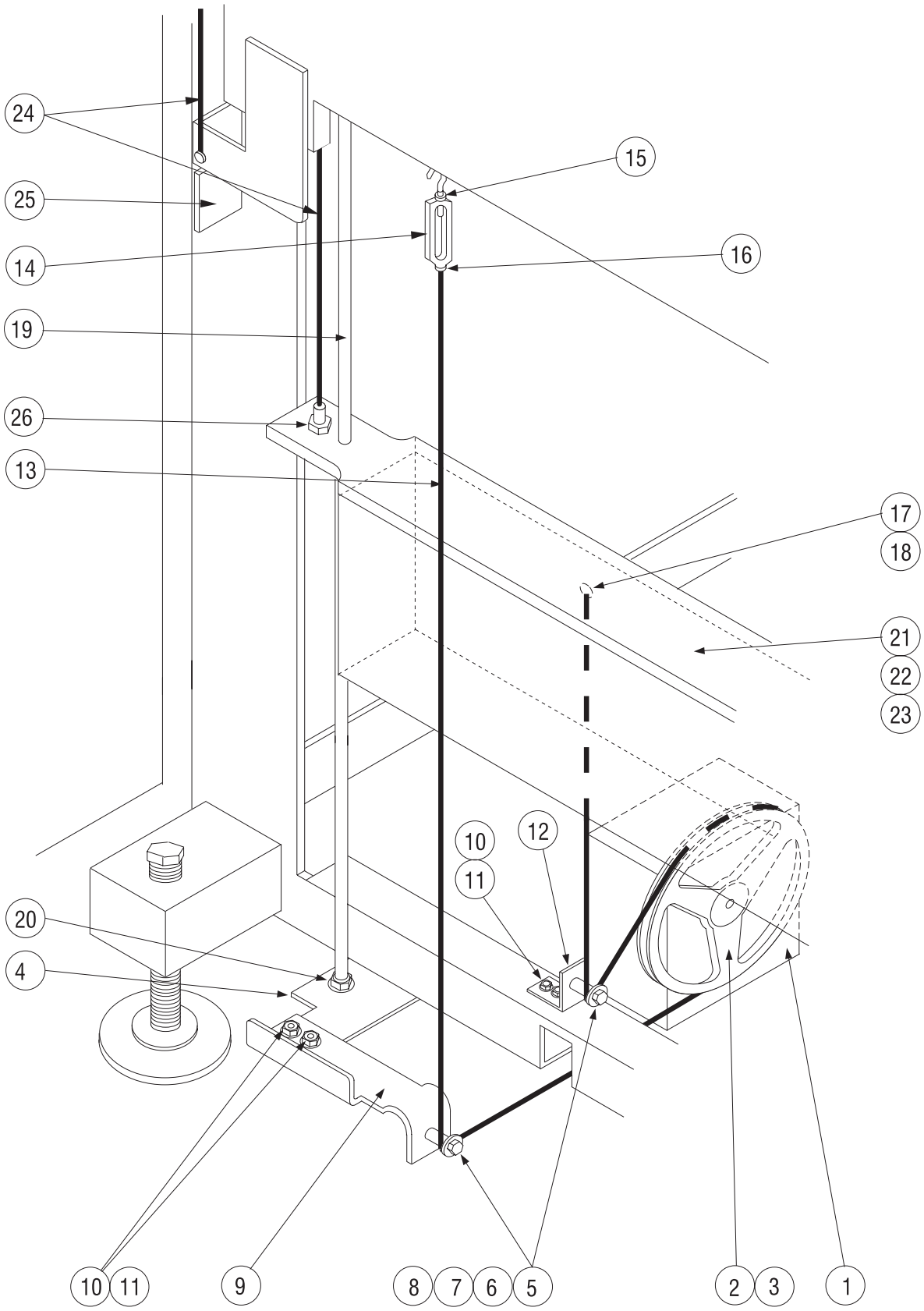


Figure 7. 16" Units Power Door Mechanism and Components

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1		DRIVE MOTOR ASSEMBLY (See Fig. 9)
2	93918 -355	SHEAVE
3	26112 -091	SET SCREW
4	129367 -457	BRKT, LOWER
5	2960 -042	NUT, HEX
6	387337 -712	SCREW, SOCKET HEAD
7	129367 -435	WASHER, INSULATING SHOULDER
8	129367 -608	WASHER, INSULATING FLAT
9	136809 -692	BRACKET, FRONT CABLE GUIDE, 16" UNIT
10	41012 -061	SCREW, SOCKET HEAD
11	19685 -061	LOCK WASHER
12	93911 -978	BRACKET, REAR CABLE GUIDE
13	93918 -039	CABLE, SHEAVE
14	129367 -563	TURN BUCKLE
15	129367 -562	NUT, KNURLED
16	150824 -374	NUT, HEX
17	129359 -012	LOCK WASHER
18	150276 -001	SCREW, PAN HEAD
19	129367 -459	ROD GUIDE
20	76239 -061	NUT, HEX
21	93918 -078	COUNTERWEIGHT TOP, (2 USED)
22	136809 -712	COUNTERWEIGHT
23	129354 -082	SCREW, FLAT COUNTERSUNK
	93911 -991	■ TRIM WEIGHT BOTTOM (.031)
	93911 -992	■ TRIM WEIGHT BOTTOM (.093)
	93911 -993	■ TRIM WEIGHT BOTTOM (.250)
	93911 -994	■ TRIM WEIGHT (.031) - USED ON TOP FOR 20", SIDE FOR 16"
	93911 -995	■ TRIM WEIGHT (.093) - USED ON TOP FOR 20", SIDE FOR 16"
	93911 -996	■ TRIM WEIGHT (.059) - USED ON TOP FOR 20", SIDE FOR 16"
24	93911 -961	CABLE DOOR
25	136809 -740	BRACKET, LH
25	136809 -741	BRACKET, RH
26	8649 -061	NUT, LOCK
	129367 -472	PIN, HITCH (DOOR SAFETY PIN W/CABLE) (Not Shown)

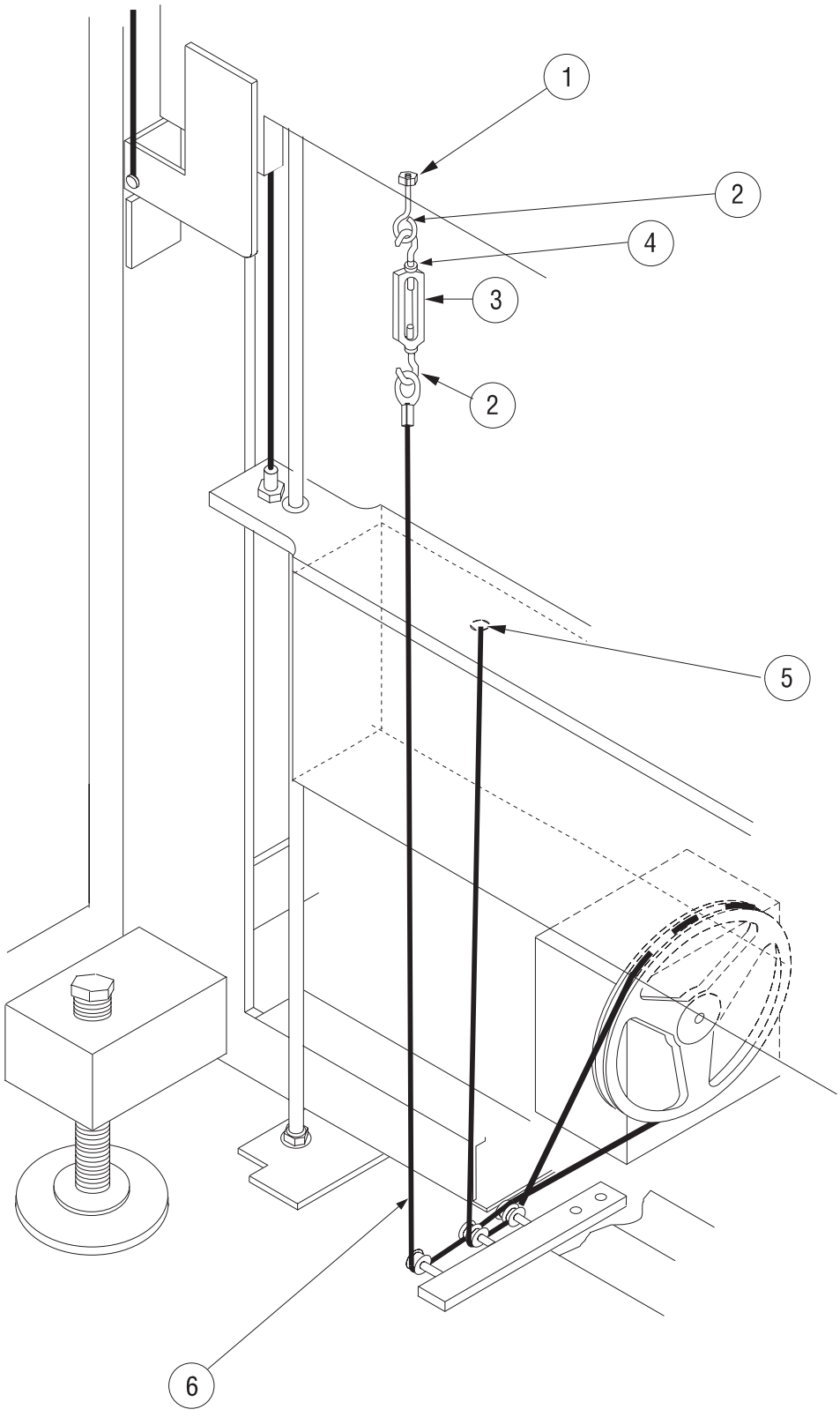


Figure 8. 20" Units Power Door Mechanism and Components
EARLY PRODUCTION CENTURY UNITS ONLY

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	150824 -374	NUT, HEX
2	34491 -091	EYEBOLT
3	129367 -563	TURN BUCKLE
4	129367 -562	NUT, KNURLED
5	129367 -434	FITTING, CABLE
6	755716 -271	CABLE, DOOR DRIVE

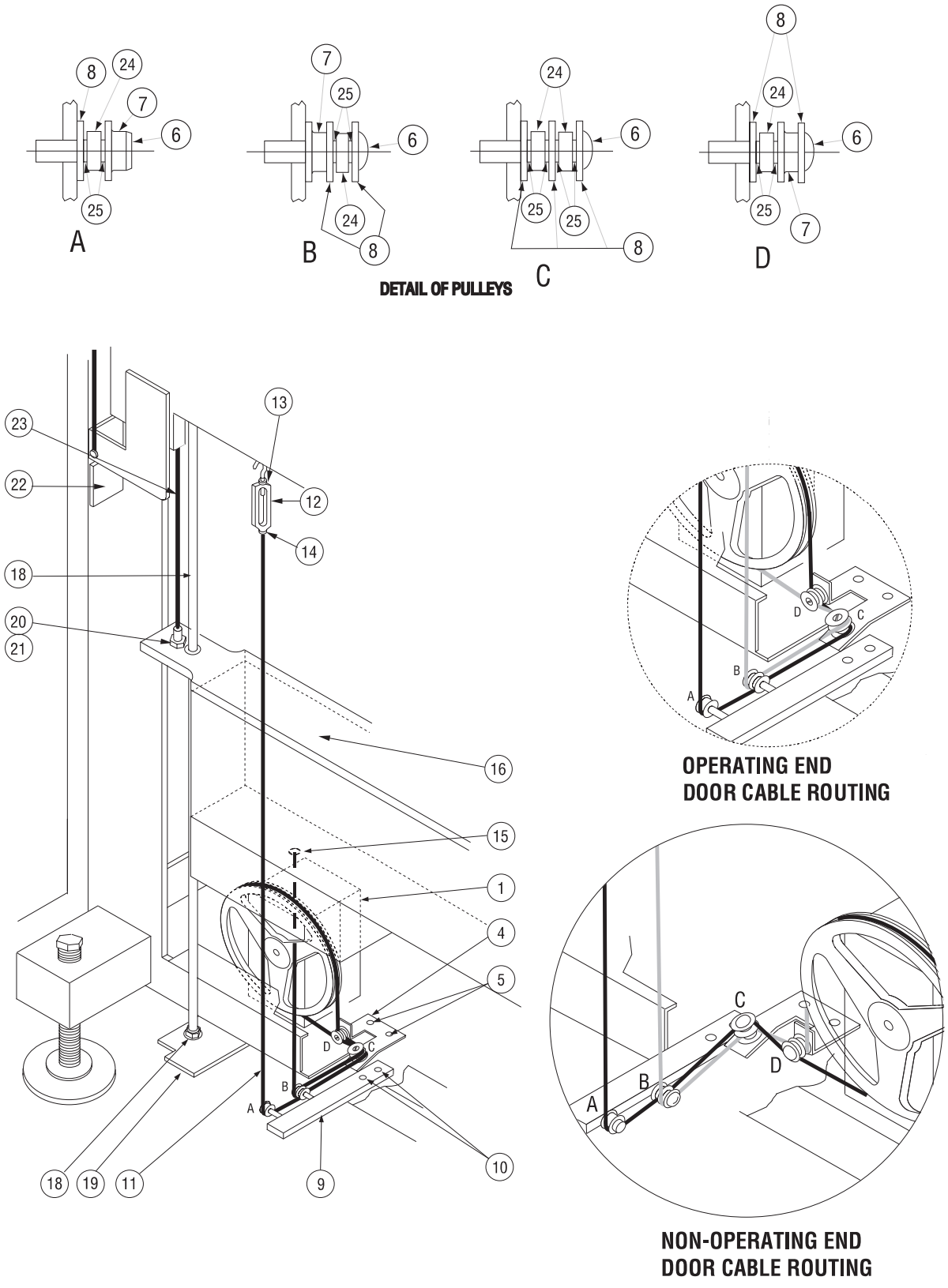


Figure 9. 20" Units Power Door Mechanism and Components

CENTURY AND MILLENNIUM STERILIZERS

20" Unit Power Door Mechanism and Components

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1		DRIVE MOTOR ASSY (SEE FIG. 9)
2	93918 -355	SHEAVE
3	26112 -091	SET SCREW
4	93918 -453	BRKT, CABLE GUIDE
5	93912 -239	SCREW, FLANGE LOCK
6	129360 -476*	SCREW SOCKET
7	129367 -436*	WASHER, INSULATING SHOULDER
8	129367 -608*	WASHER, INSULATING FLAT
9	129367 -594	BAR, CABLE GUIDE
10	150828 -313	SCREW, FLANGE LOCK
11	93918 -357**	CABLE, DOOR DRIVE, NEW STYLE (64-3/32" LONG)
	755716 -271**	CABLE, DOOR DRIVE, OLD STYLE (56-27/32" LONG)
12	129367 -563	TURN BUCKLE
13	129367 -562	NUT, KNURLED
14	150824 -374	NUT, HEX
15	129367 -434	FITTING, CABLE
16	136809 -799	COUNTERWEIGHT
	93918 -437	■ TRIM WEIGHT BOTTOM 1/32"
	93918 -438	■ TRIM WEIGHT BOTTOM 3/32"
	93918 -439	■ TRIM WEIGHT BOTTOM 1/4"
17	129367 -459	ROD GUIDE
18	129360 -015	NUT
19	93918 -429	BRKT, COUNTERWEIGHT
20	8649 -061	NUT
21	129359 -014	LOCKWASHER
22	136809 -690	BRACKET, DOOR CABLE - LEFT HAND
	136809 -691	BRACKET, DOOR CABLE - RIGHT HAND
23	93918 -358	CABLE, COUNTERWEIGHT
24	129367 -636*	ASSEMBLY, BALL BEARING
25	129367 -635*	WASHER, STEEL

NOTE: Early 20" Century units may have door drive rotated 90º from that shown. Refer to illustration on preceding page for details.

**Refer to lettered detail views (A, B, C or D) on facing page to determine actual hardware quantities and assembly order for each drive cable pulley.*

***Cable length is different on old vs. new units. Measure cable length before ordering.*

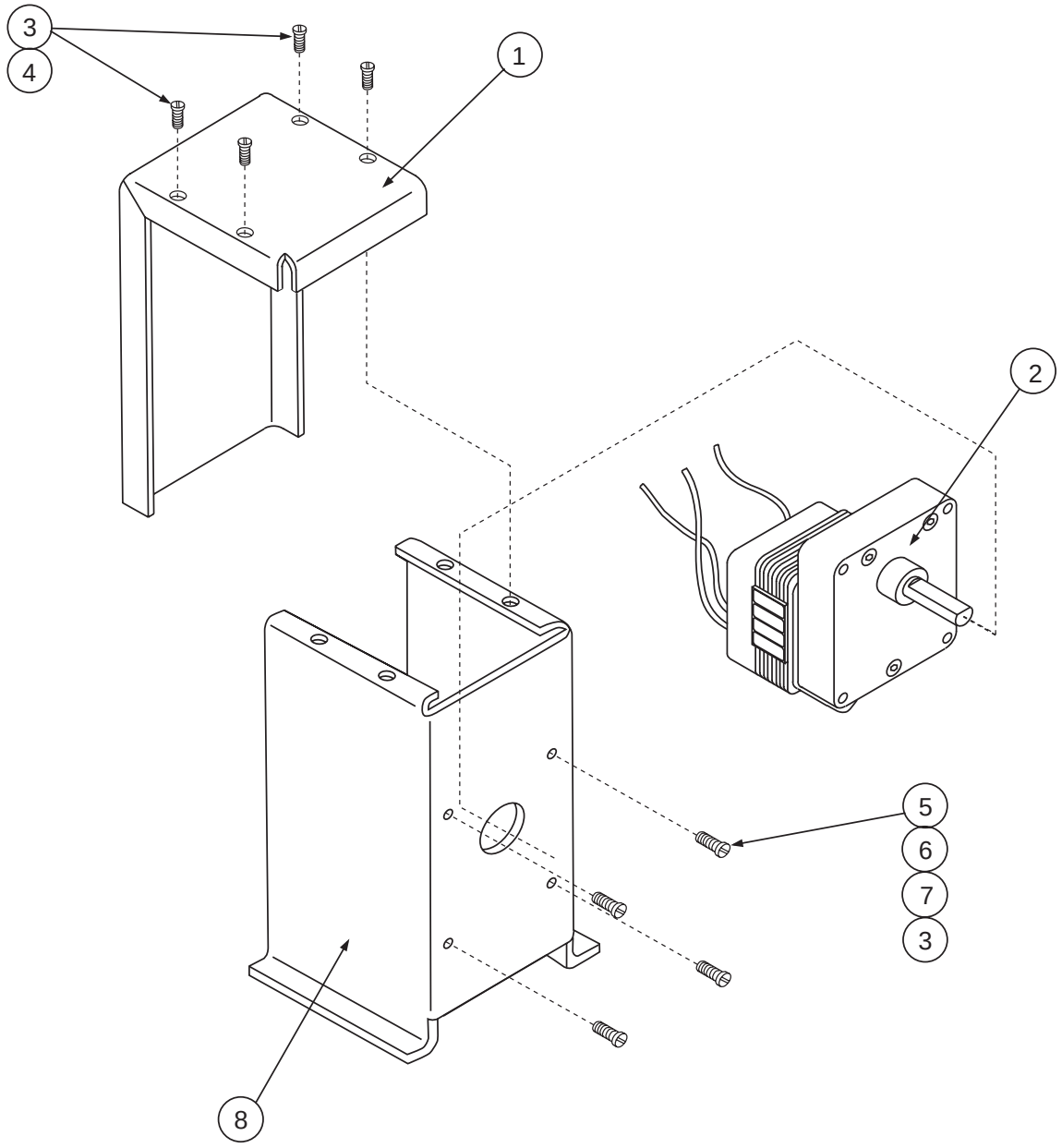
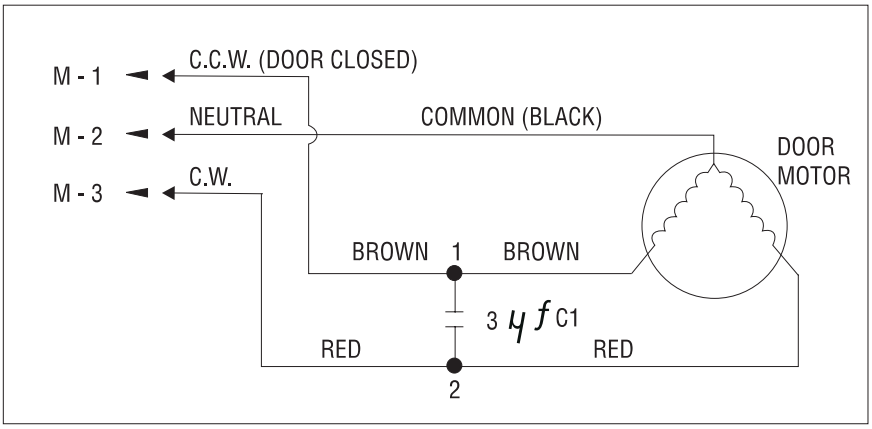


Figure 10. Door Motor and Housing

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
	146660 -338	MOTOR HOUSING ASSY., COMPLETE
1	146660 -337	COVER, MOTOR HOUSING
2	136809 -709	MOTOR, DOOR
3	124359 -012	WASHER, LOCK #8 EXT. TOOTH
4	150276 -001	SCREW, PAN HD. #8-32 x 3/8" LG.
5	129361 -238	SCREW, PAN HD. #8-32 x 1-1/4" LG.
6	702497 -020	NUT, HEX #8-32
7	208444 -061	WASHER, FLAT, 1/32 (Early Built Units Only)
8	146660 -336	HOUSING, MOTOR
	93918 -050	CAPACITOR (Not Shown)



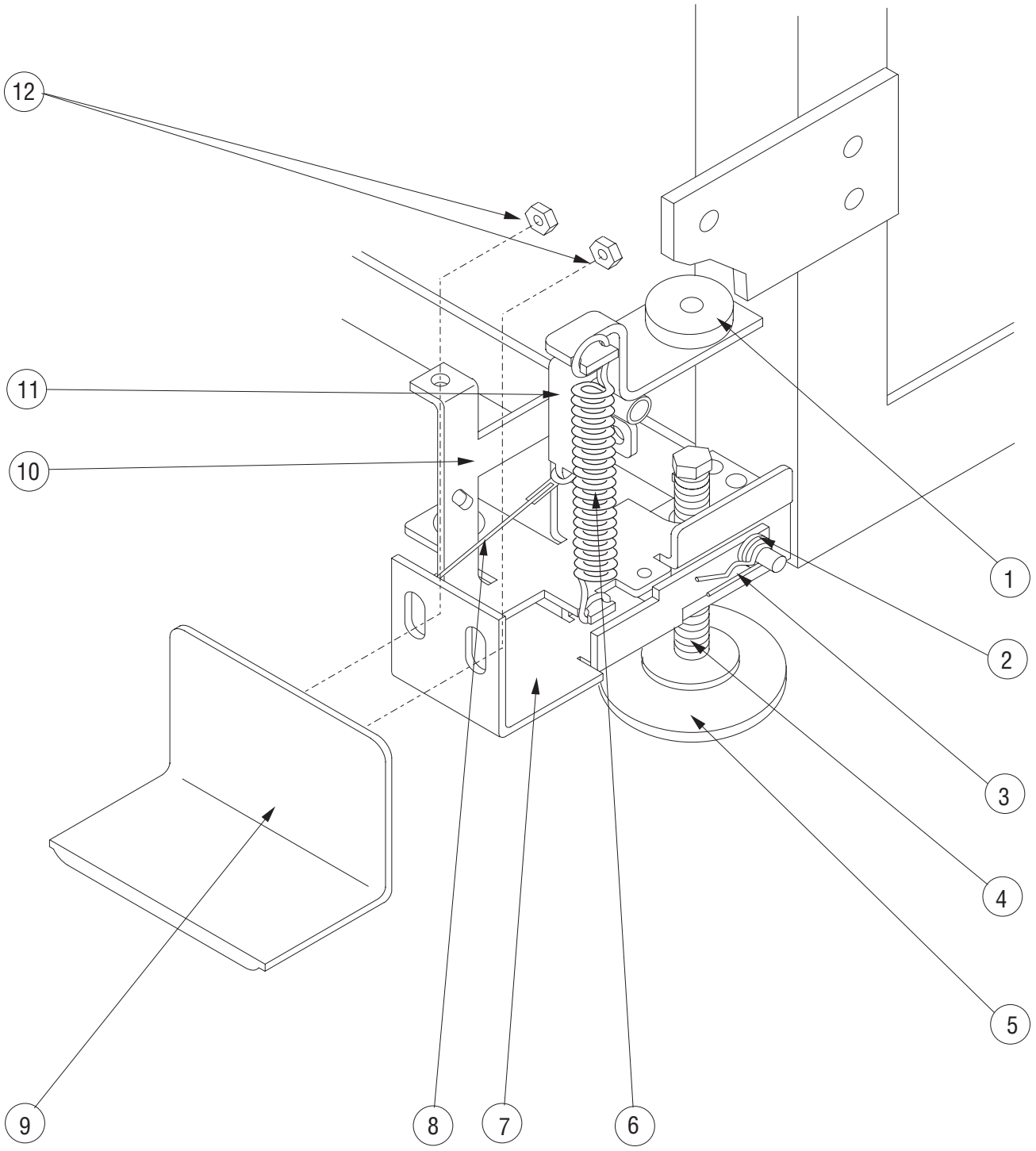


Figure 11. Manual Door Foot Pedal

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	129367 -506	MAGNET, DOOR
2	129367 -522	PIN, CLEVIS, 1/4" x 1-3/4"
3	129367 -523	HAIR PIN
4	129367 -486	SCREW, LEVELING, 5/8-11 x 2-3/4"*
5	90423 -091	PAD, FOOT
6	129367 -506	SPRING, PEDAL LEVER
7	136809 -770	LEVER, PEDAL
8	93918 -072	CABLE, PEDAL
9	93918 -025	WELDMENT, FOOT PEDAL
10	136809 -772	BRACKET, MAGNET LEVER (PEDAL UP-STOP)
11	93918 -091	LEVER WELDMENT, MAGNET
12	2960 -042	NUT

**Other three leveling positions fitted with P-129367-560 leveling screw (5/8-11 X 5").*

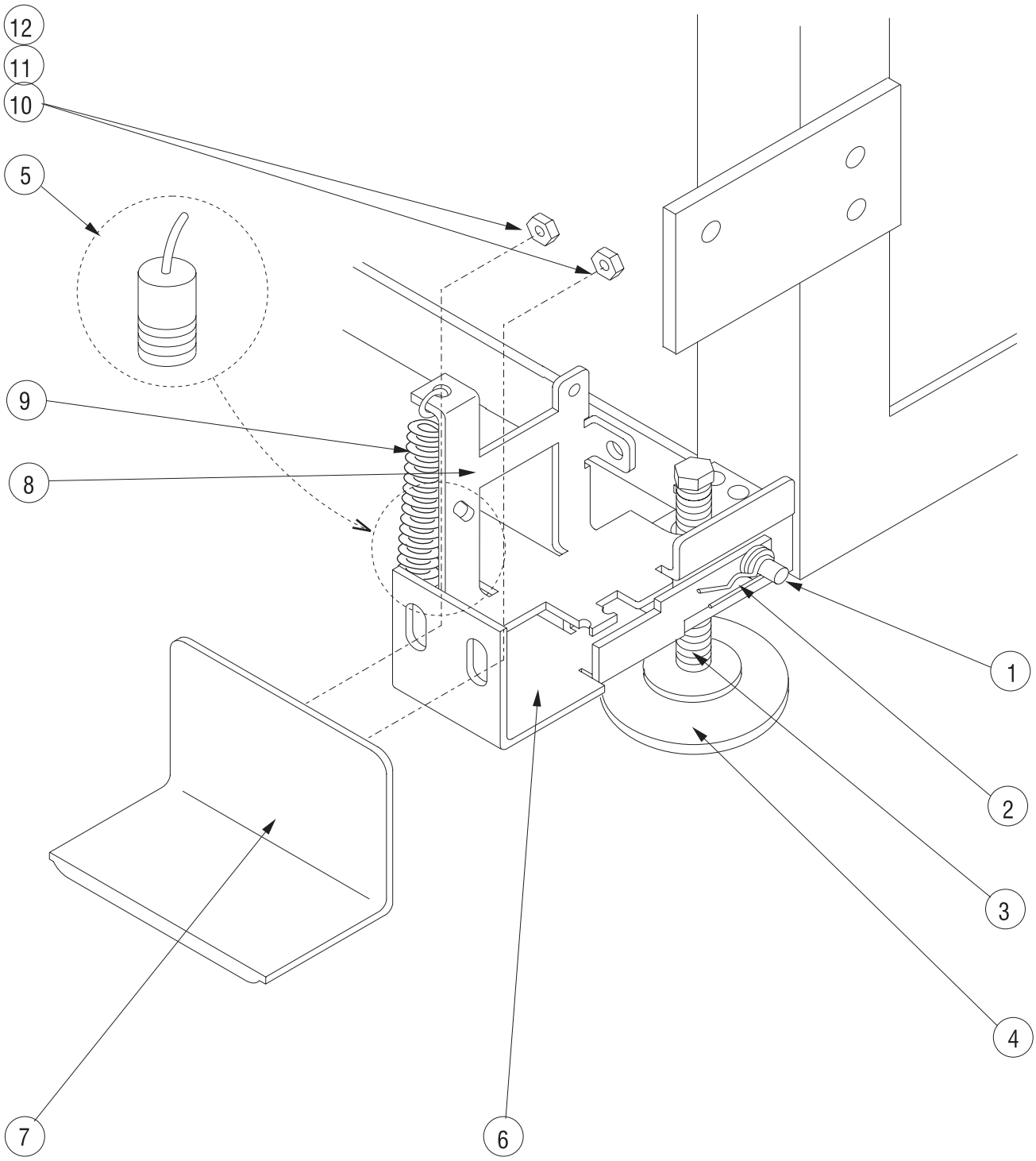


Figure 12. Power Door Foot Pedal

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	129367 -522	PIN CLEVIS, 1/4 DIA x 1-3/4 LG
2	129367 -523	HAIR PIN
3	129367 -560	SCREW, LEVELING, 5/8"-11 x 5"
4	90423 -091	PAD, FOOT
5	93909 -954	SENSOR
6	136809 -770	LEVER, PEDAL, 16"
	136809 -687	LEVER, PEDAL, 20"
7	93918 -025	WELDMENT, FOOT PEDAL
8	136809 -688	BRACKET, PEDAL UP-STOP, 20"
	136809 -772	BRACKET, PEDAL UP-STOP, 16"
9	129367 -520	SPRING, PEDAL LEVER
10	2960 -042	NUT, HEX, 10-32
11	19685 -061	LOCKWASHER #10
12	20844 -061	WASHER, FLAT, 7/16 OD x 13/64 ID x 1/32 THK.

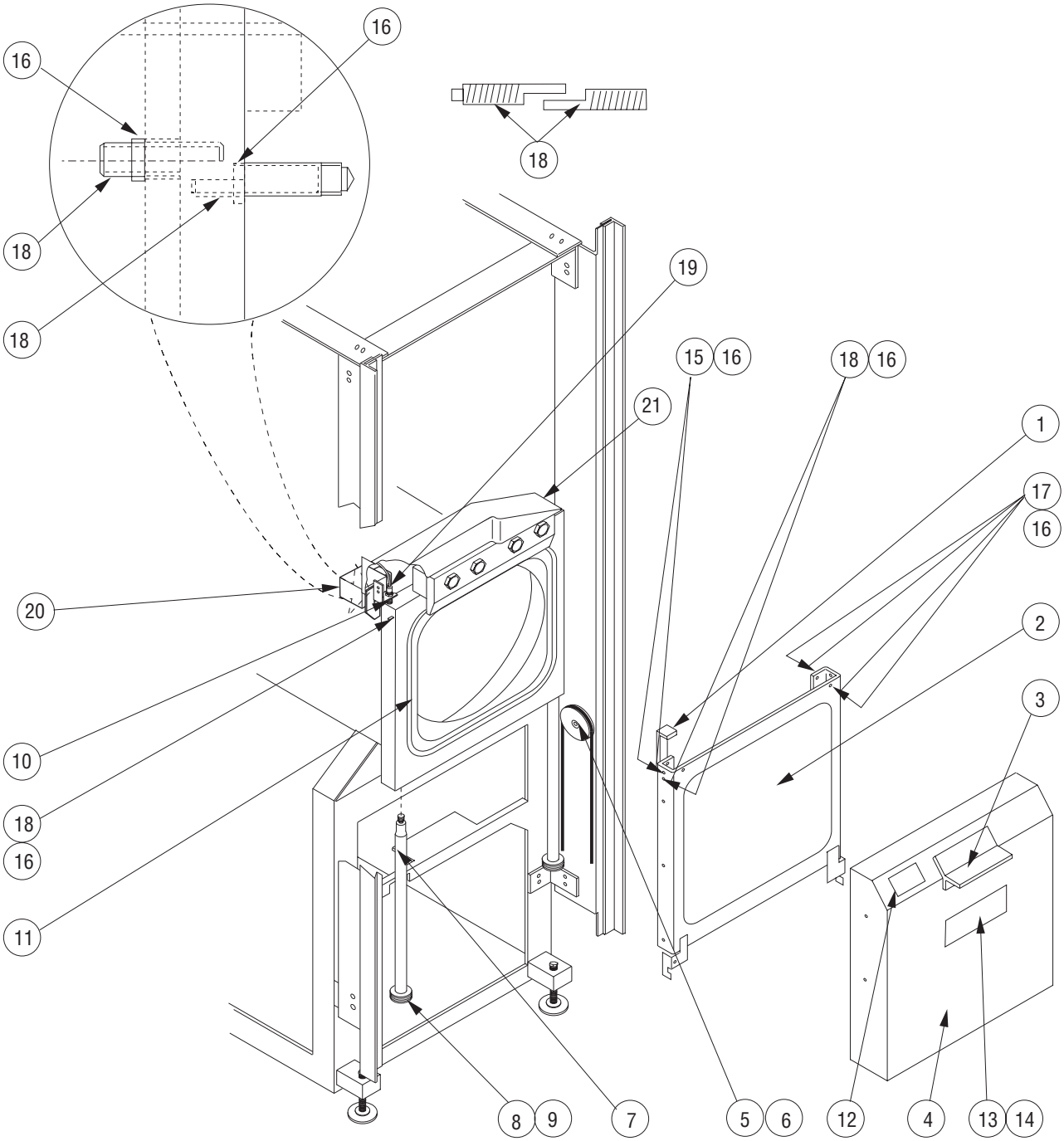


Figure 13. Door Components

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	93918 -441	TARGET, SENSOR, 20"
	93918 -435	TARGET, SENSOR, 16"
2	755716 -358	DOOR, 16"
	755716 -359	DOOR, 20"
3	136809 -786	HANDLE, DOOR COVER - CENTURY
	93922 -452	HANDLE, DOOR COVER - MILLENNIUM
4	146657 -810	DOOR COVER - 16" CENTURY
	93922 -455	DOOR COVER - 16" MILLENNIUM
	146657 -983	DOOR COVER - 20" CENTURY
	93922 -456	DOOR COVER - 20" MILLENNIUM
5	93911 -952	PULLEY, 16"
	93911 -990	PULLEY, 20"
6	136809 -693	BRACKET, PULLEY, L.H., 20"
	136809 -694	BRACKET, PULLEY, R.H., 20"
7	93918 -360	ROD, GUIDE, 20"
	93918 -010	ROD, GUIDE, 16"
8	129367 -441	STOP, DOWN
9	129367 -442	SPACER, DOWN STOP
10	93918 -191	BRACKET, DOOR SENSOR
11	146660 -159	ASSEMBLY, SEAL (16" UNIT)
	146660 -160	ASSEMBLY, SEAL (20" UNIT)
12	129359 -033	DECAL - HOT SURFACES
13	56401 -023	LABEL, “CLEAN” O.E. (DBL DR UNITS ONLY)
14	56401 -024	LABEL, “DIRTY” N.O.E. (DBL DR UNITS ONLY)
15	129367 -587	NYLON TIP SCREW SOC HEAD SET, 1/4-28 x 1 (TYP. BOTH SIDES)
16	129367 -475	NUT HEX 1/4-28
17	129367 -568	NYLON TIP SCREW SOC HEAD SET, 1/4-28 x 5/8 LG. (TYP. FRONT & BACK - TOP)
18	129367 -440 *	SCREW, SOC. HEAD (LOW PRESSURE LOCK), 2 REQUIRED PER SIDE
19	93909 -954	SENSOR ASSEMBLY, PROXIMITY
		Liquids Cycle Package Modifications - Century
20	136809 -684	ASSEMBLY, SOLENOID
	93918 -436	■ SOLENOID, PUSH
	136809 -698	■ CABLE ASSEMBLY
21		
	146657 -740	HOOD, VAPOR, 16-INCH
	146660 -176	HOOD, VAPOR, 20-INCH
	129362 -821	■ SCREW, BUTT HEAD, #10 X 3/8 LNG
	19685 -061	■ WASHER, LOCK, #10
		** Install this item using Loctite® 242*

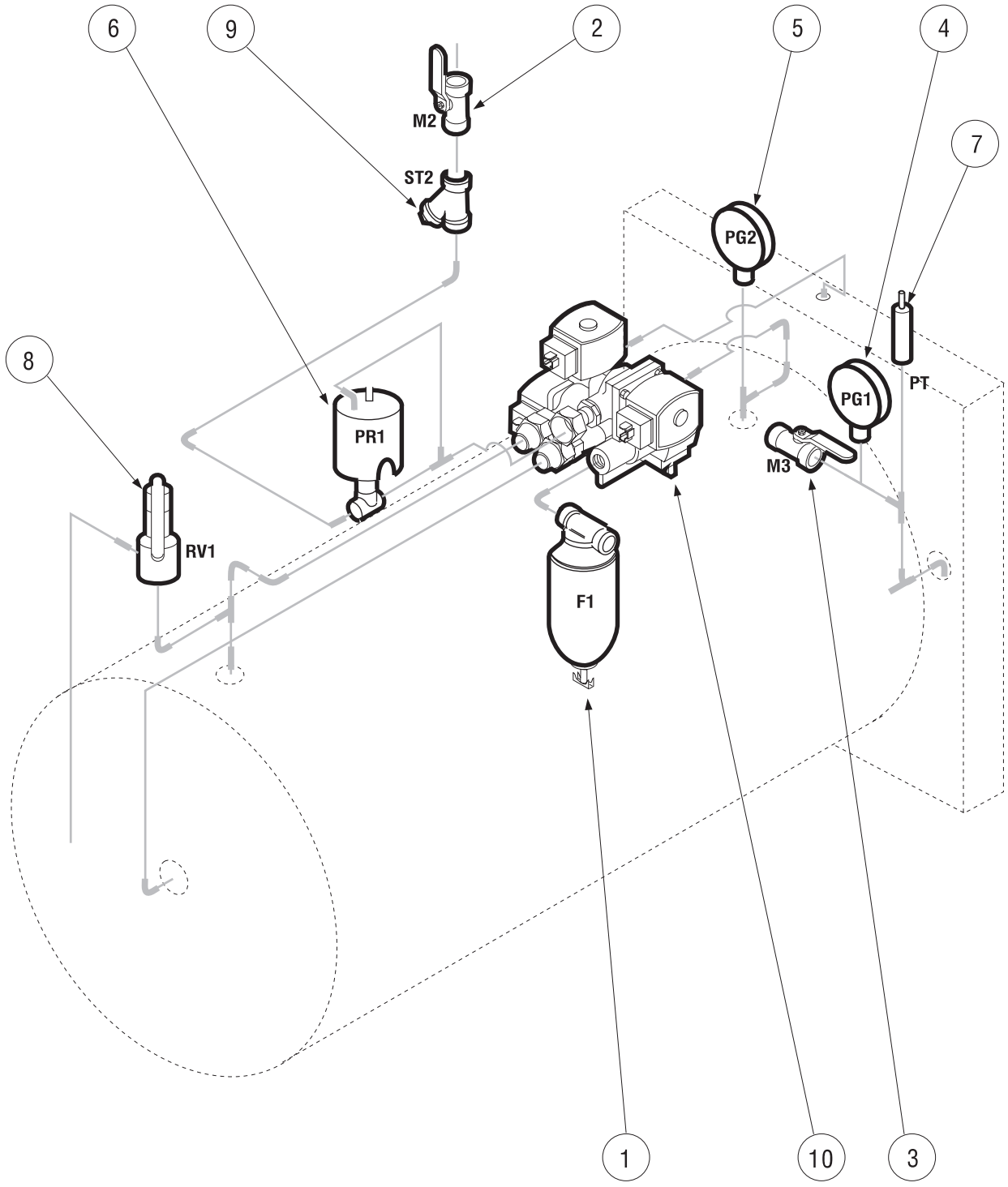


Figure 14. Upper Level Components - Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	93909 -592	FILTER, AIR, 1/2" NPT	(F1)
	129360 -802	■ ELEMENT	
2	93918 -065	BALL VALVE, 1/2" NPT (Steam)	(M2)
3	93918 -212	BALL VALVE, 1/4" NPT (Manual Exhaust)	(M3)
4	7872 -051	PRESSURE GAUGE-STEAM, CHAMBER (O.E.)	(PG1)
5	7871 -051	PRESSURE GAUGE-STEAM, JACKET	(PG2)
6	136809 -750 *	REGULATOR, 3/8" NPT	(PR1)
	754359 -001	■ KIT, REPAIR	
7	136809 -787	TRANSDUCER, PRESSURE	(PT)
8	93918 -013	SAFETY VALVE, 1/2" NPT, (50 psi)	(RV1)
9	150828 -459	STRAINER, 1/2" NPT	(ST2)
	764326 -663	■ SCREEN, CONBRACO	
	764326 -727	■ O'RING, CONBRACO	
	764317 -906	■ SCREEN, SARCO	
10	146657 -787 *	MANIFOLD, STEAM SUPPLY, (See Fig. 28)	

** NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-3.*

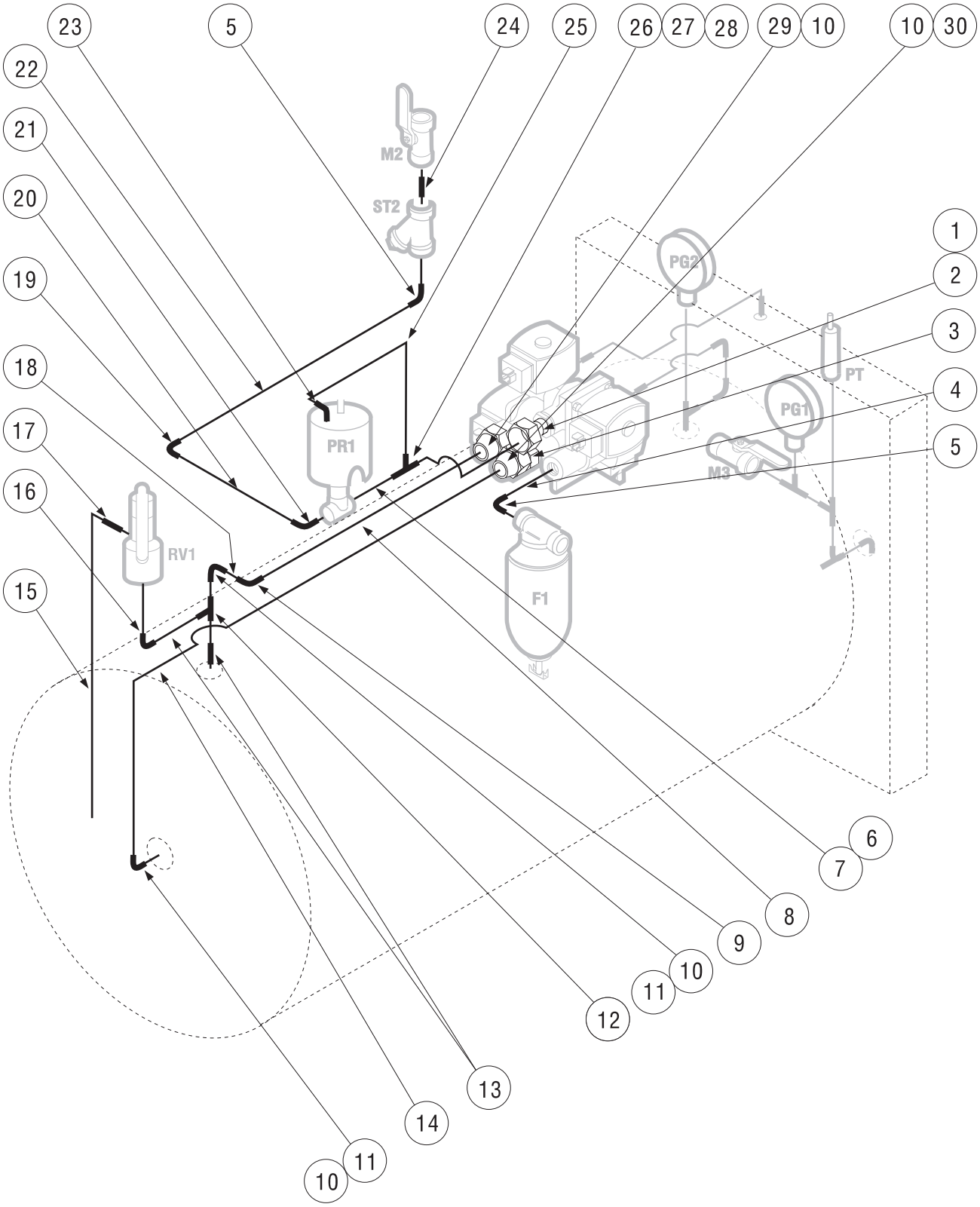


Figure 15. Upper Left Piping Components/Fittings - Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	837 -091	BUSHING, RED, 1/2" NPT x 3/8" NPT	
2	29013 -091	NIPPLE, 3/8" NPT x 1" LG.	
3	29178 -091	NIPPLE, 1/2" NPT x 5-1/4" LG.	
4	29174 -091	NIPPLE, 1/2" NPT x 4" LG.	
5	1634 -091	ELBOW, STREET, 1/2" NPT	
6	4076 -091	SPUD, UNION, 3/8" NPT	
7	2901 -091	NUT, UNION, 3/8" NPT	
8	90283 -091	TUBE, 5/8" ODT x 5-5/8" LG.	
9	90212 -091	FTG., ELBOW, SOLDER, 1/2" NOM.	
10	118202 -091	NUT, FLARE, 5/8" ODT	
11	150822 -988	ELBOW, FLARE, 1/2" NPT x 5/8" ODT	
12	4931 -091	TEE, 1/2" NPT	
13	29163 -091	NIPPLE, 1/2" NPT x 1-1/4" LG.	
14	136809 -784	TUBE, STEAM TO CHAMBER, 1/2" ODT, 16" UNITS	
15	136809 -785	TUBE, SAFETY VALVE VENT, 3/4" ODT	
16	1633 -091	ELBOW, 1/2" NPT	
17	44846 -091	FITTING, UNION, SOLDER, 3/4" NPT x 3/4" NOM.	
18	89230 -091	TUBE, 5/8" ODT x 2-3/8" LG.	
19	1622 -091	ELBOW, RED., 1/2" NPT x 3/8" NPT	
20	29031 -091	NIPPLE, 3/8" NPT x 5-1/2" LG.	
21	1631 -091	ELBOW, STREET, 3/8" NPT	
22	29195 -091	NIPPLE, 1/2" NPT x 9-1/4" LG.	
23	26181 -091	FITTING, COMP. ELL, 1/8" NPT x 1/8" ODT	
24	29162 -091	NIPPLE, 1/2" NPT x 1" LG.	
25	R-915 -043	TUBE, 1/8" ODT x 14" LONG	
26	20344 -091	FTG., COMP. STR., 1/8" NPT x 1/8" ODT	
27	4910 -091	TEE, RED., 3/8" NPT x 3/8" NPT x 1/4" NPT	
28	939 -091	BUSHING, RED., 1/4" NPT x 1/8" ODT	
29	150822 -991	FITTING, FLARE, STR. 1/2" NPT X 5/8" ODT	
30	150822 -992	FTG., FLARE, STR. 5/8" ODT x 1/2" NPT (FEMALE)	

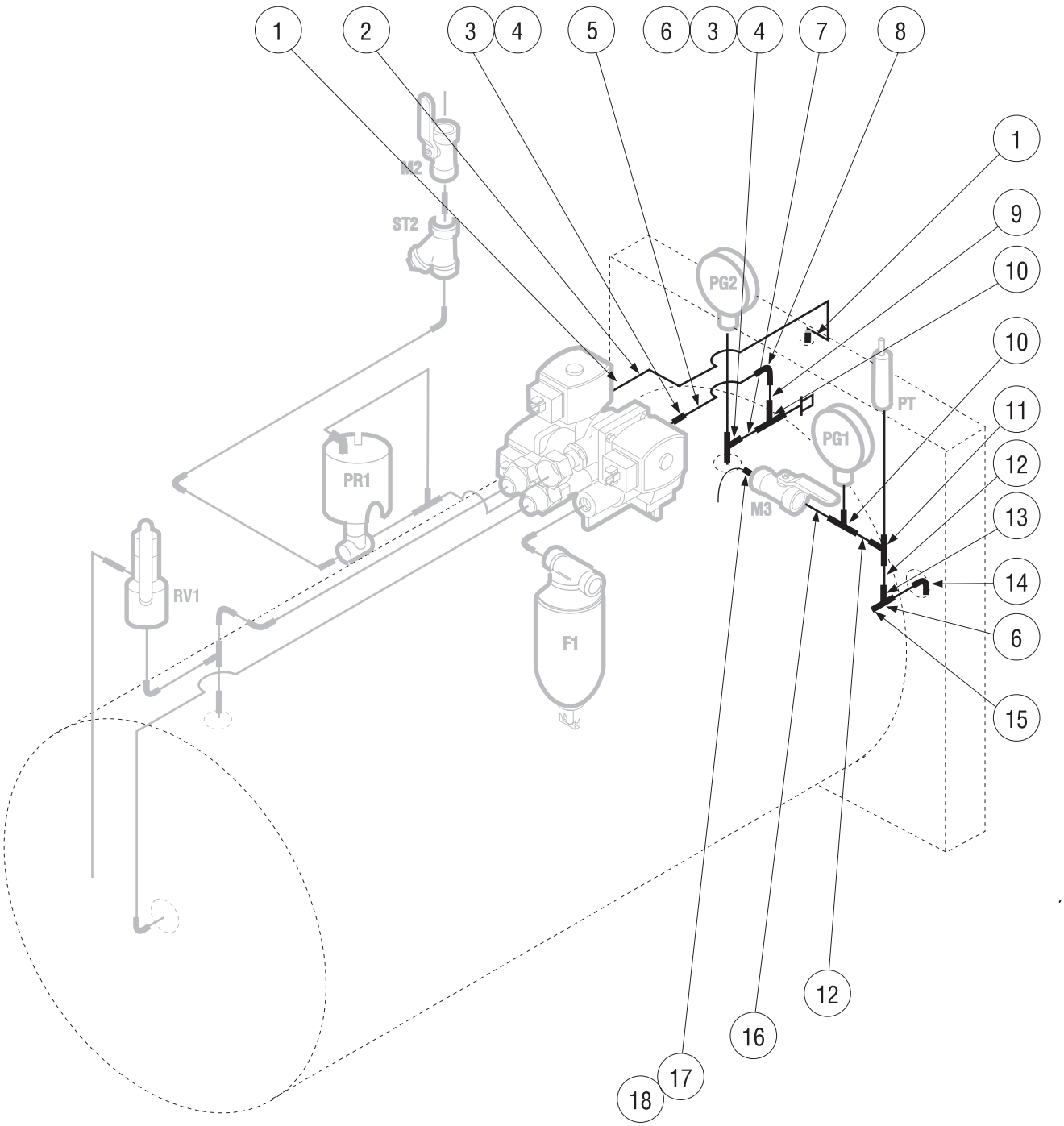
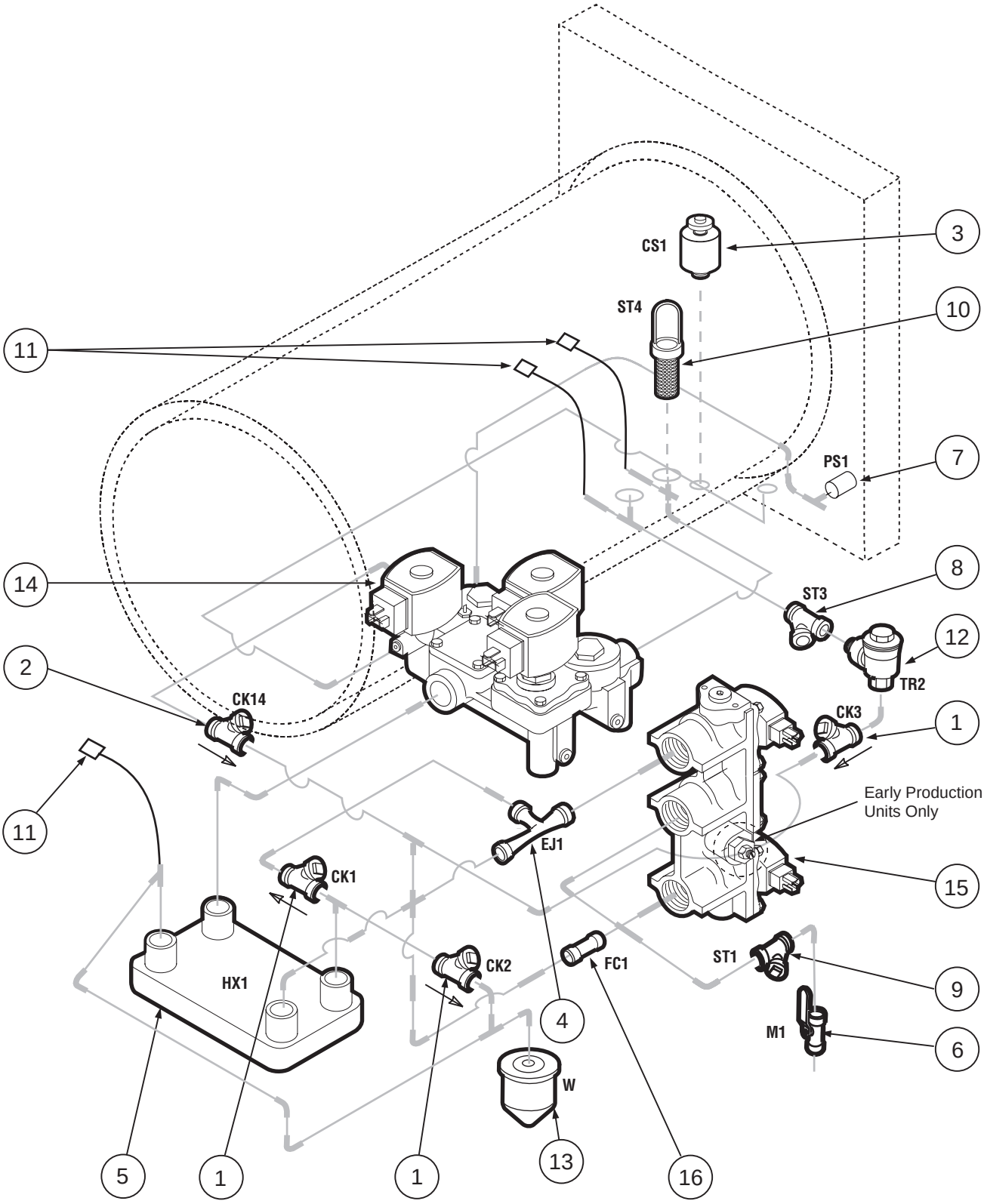


Figure 16. Upper Right Piping Components/Fittings - Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	80917 -091	FITTINGS, COMP. STR., 1/8" NPT x 5/16" ODT	
2	136809 -795	TUBE, STEAM TO SEAL, O.E. (16")	
	136809 -812	TUBE, STEAM TO SEAL, O.E. (20")	
3	150822 -991	FITTING, FLARE, STR., 1/2" NPT x 5/8" ODT	
4	118202 -091	NUT, FLARE, 5/8" ODT	
5	90297 -091	TUBE, 5/8" ODT x 2-3/8" LG.	
6	91154 -091	TEE, STREET, 1/2" NPT	
7	90271 -091	TUBE, 5/8" ODT x 2-3/4" LG.	
8	90212 -091	FTG., ELBOW, SOLDER, 1/2" NOM.	
9	89789 -091	TUBE, 5/8" ODT x 4" LG.	
10	4913 -091	TEE, 1/4" x 1/4" x 1/8"	
11	4906 -091	TEE, 1/4" NPT	
12	28919 -091	NIPPLE, 1/4" NPT x 1-1/2" LG.	
13	76053 -091	BUSHING, RED., 1/2" NPT x 1/4" NPT	
14	1634 -091	ELBOW, STREET, 1/2" NPT	
15	3442 -091	PLUG, PIPE, 1/2" NPT	
16	28916 -091	NIPPLE, 1/4" NPT x 7/8" LG.	
17	129367 -215	ELBOW, TUBE, COUPLING, 1/4" NPT x 1/4" ODT	
18	R-3500 -525	TUBE, TEFLON, 1/4" ODT x 54" LG.	
19	90467 -091	FTG., TEE	
20	3441 -091	PLUG, PIPE, 3/8" NPT	



NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

Figure 17. Lower Level Components - Single Door

CENTURY AND MILLENNIUM STERILIZERS

Lower Level Components - Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

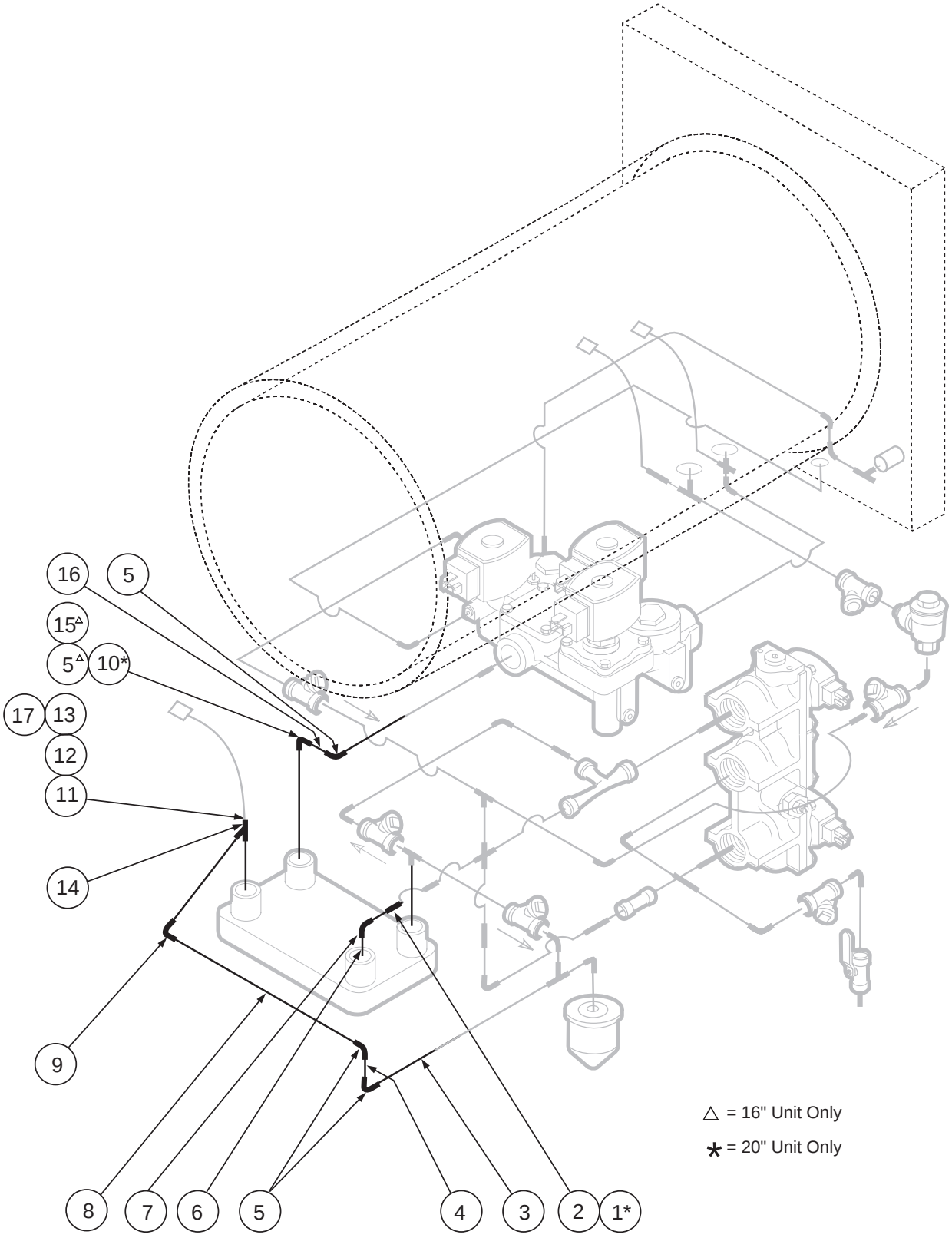
ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	150822 -354	CHECK VALVE, (swing), 1/2" NPT	(CK1, CK2, CK3)
	764319 -608	■ DISC	
2	10278 -091	CHECK VALVE, 1/4"	(CK14)
3	93918 -038	CHAMBER WATER SENSOR	(CS1)
4	83924 -001	EJECTOR, WATER	(EJ1)
5	* *	HEAT EXCHANGER	(HX1)
6	93918 -066	BALL VALVE, 3/4" NPT (water)	(M1)
7	83865 -001	SWITCH, PRESSURE	(PS1)
8	150828 -459	STRAINER, 1/2" NPT	(ST3)
	764326 -663	■ SCREEN, CONBRACO	
	764326 -727	■ O'RING, CONBRACO	
	764317 -906	■ SCREEN, SARCO	
9	47708 -091	STRAINER, 3/4" NPT	(ST1)
	754616 -091	■ SCREEN, SARCO	
	764326 -673	■ SCREEN, UNITED BRASS	
10	93918 -035	CHAMBER DRAIN SCREEN	(ST4)
11	93911 -351	RTD (chamber, drain and jacket temperature)	(TP)
	150822 -802	■ BUSHING, Probe, 1/2 NPT	
	150822 -845	■ BUSHING, Half	
	150822 -801	■ BUSHING, Rubber, RTD Support	
*12	129222 -001	TRAP, JACKET, 1/2" NPT	(TR2)
	764080 -001	■ KIT, REPAIR	
13	146660 -109	FUNNEL, WASTE	(W)
*14	146657 -788	MANIFOLD, EXHAUST, (See Fig. 28)	
*15	146657 -789	MANIFOLD, WATER, (See Fig. 29)	
16	83629 -001	FLOW CONTROL	(FC1)

** NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-3.*

*** Two versions of heat exchangers have been used. When replacing, check model number on heat exchanger and do the following:*

If model #5-685-04-007-002, then a kit must be ordered. For 16" units, order P-764328-456; for 20" units, order P-764328-457.

If model #5-693-04-010-003, order replacement heat exchanger P-136809-844.



NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

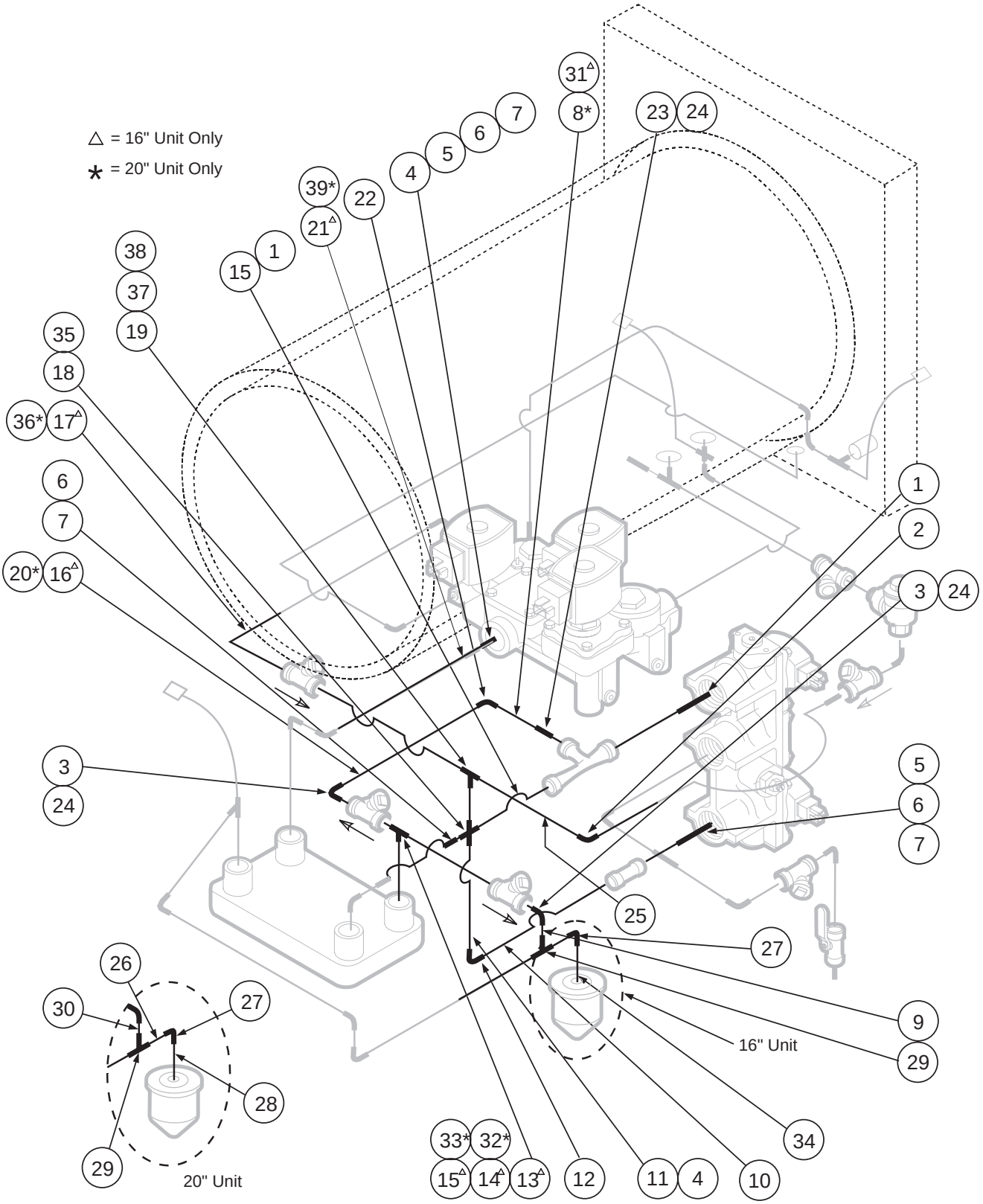
Figure 18. Lower Left Piping Components/Fittings - Single Door

CENTURY AND MILLENNIUM STERILIZERS

Lower Left Components/Fittings - Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	29309 -091	NIPPLE, 3/4" NPT x 5-3/4" LG. (20" UNIT)	
2	1747 -091	THREAD END, FEMALE, 3/4" NPT	
3	83449 -002	TUBE, 7/8" ODT x 2-1/4" LG.	
4	83449 -001	TUBE, 7/8" ODT x 2-1/2" LG.	
5	44495 -091	FTG., ELBOW, SOLDER, 3/4" NOM.	
6	29300 -091	NIPPLE, 3/4" NPT x 3-1/2" LG (16" UNIT)	
	29295 -091	NIPPLE, 3/4" NPT x 2-1/4" LG (20" UNIT)	
7	1636 -091	ELBOW, STREET, 3/4" NPT (16" UNIT)	
8	93918 -502	TUBE, 7/8" ODT x 12-11/16" LG (16" UNIT)	
	93918 -507	TUBE, 7/8" ODT x 13-5/32" LG (20" UNIT)	
9	89721 -091	FTG., ELBOW, 45°, 3/4" NOM. FTG. x 7/8" ODT	
10	44506 -091	FTG., ELBOW STR., SOLDER, 3/4" NPT x 3/4" NOM.	
11	150822 -845	BUSHING, RTD PROBE	
12	150822 -801	BUSHING, RUBBER	
13	150822 -802	BUSHING, PROBE, 1/2" NPT	
14	129367 -826	TEE, 3/4" NPT x 3/4" NPT x 7/8" ODT	
15	91159 -091	ADAPTER (F), 7/8" ODT x (M) 3/4" NPT (16" UNIT)	
16	50518 -091	TUBE, 7/8" ODT x 2-1/8" LG (16" UNIT)	
	89520 -091	TUBE, 7/8" ODT x 1-3/4" LG (20" UNIT)	
17	836 -091	BUSHING, RED, 3/4" NPT X 1/2" NPT	

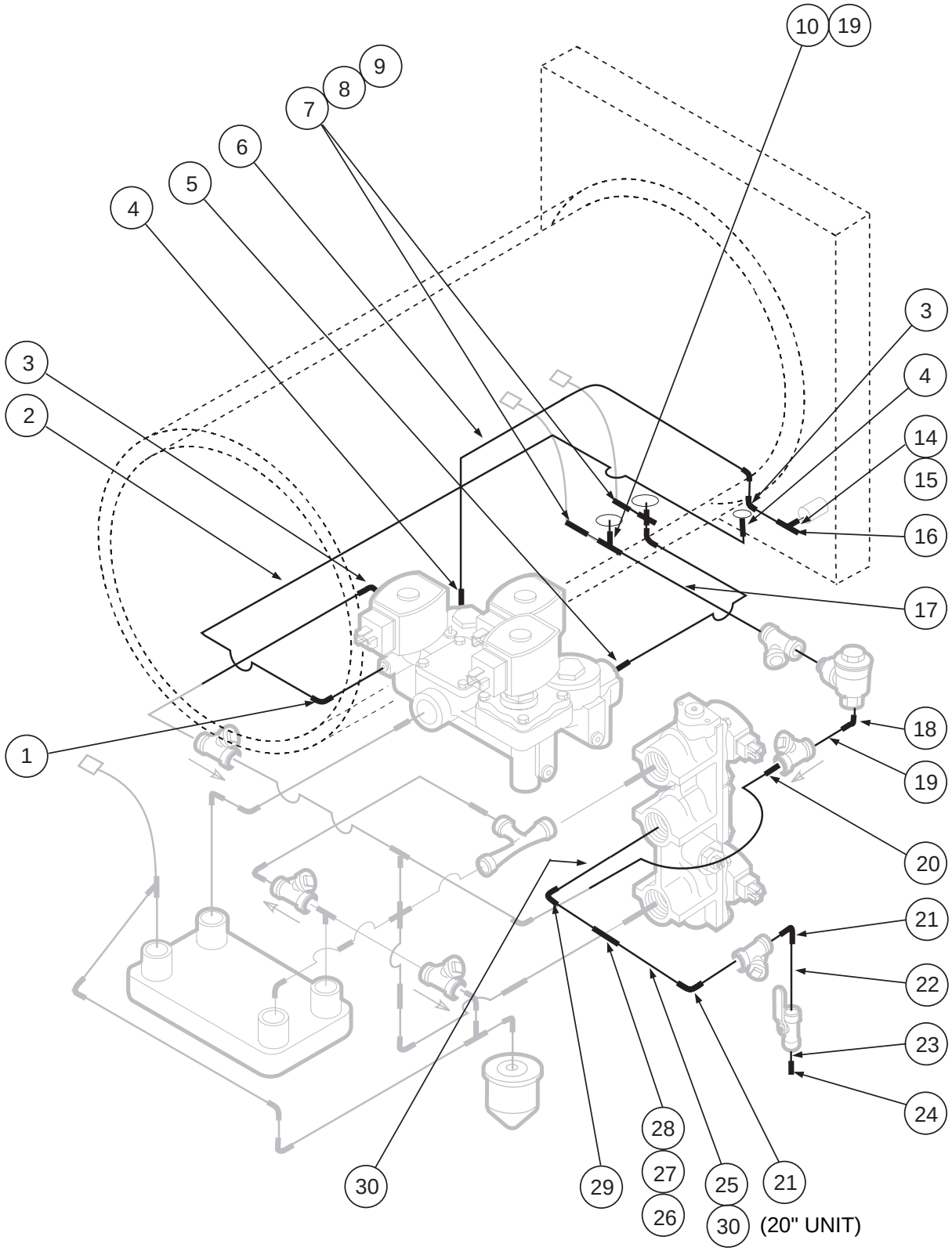


NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

Figure 19. Lower Center Piping Components/Fittings - Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	836 -091	BUSHING, RED, 3/4" NPT x 1/2" NPT
2	6750 -091	FTG., COMP. ELL, 1/8" NPT x 5/16" ODT
3	150822 -988	ELBOW, FLARE, 1/2" NPT x 5/8" ODT
4	91158 -091	FTG., ADAPTER, SOLDER 3/4" NPT x 3/4" NOM.
5	1747 -091	THREAD END., FEMALE 3/4" NPT
6	4247 -091	SPUD, UNION, 3/4" NPT
7	2903 -091	NUT, UNION, 3/4" NPT
8	90267 -091	TUBE, 5/8" ODT x 2-1/4" LG. (20" UNIT)
9	129356 -514	TUBE, 5/8" ODT x 2-7/16" LG. (16" UNIT)
10	80030 -091	TUBE, 7/8" ODT 1-5/8" LG.
11	89556 -091	TUBE, 7/8" ODT x 3-1/4" LG.
12	44495 -091	FTG., ELBOW, SOLDER 3/4" NOM.
13	4930 -091	TEE, RED, 1/2" NPT x 1/2" NPT x 3/4" NPT
14	29290 -091	NIPPLE, 3/4" NPT x 1" LG.
15	29162 -091	NIPPLE, 1/2" NPT x 1" LG.
16	90517 -091	TUBE, 5/8" ODT x 6-1/8" LG. (16" UNIT)
17	93918 -362	TUBE, CONSTANT BLEED S.D. (16" UNIT)
18	1345 -091	CROSS, 3/4" NPT
19	21549 -091	FTG., COMP. TEE, 5/16" ODT x 5/16" ODT x 1/8" NPT
20	83464 -006	TUBE, 5/8" ODT x 11-3/8" LG. (20" UNIT)
21	93918 -503	TUBE, 7/8" ODT x 6-3/8" LG. (16" UNIT)
22	90212 -091	FTG., ELBOW, SOLDER, 1/2" NOM.
23	150822 -991	FTG., FLARE, 1/2" NPT x 5/8" ODT
24	118202 -091	NUT, FLARE, 5/8" ODT
25	93918 -366	TUBE, (16" UNIT)
	93918 -464	TUBE, (20" UNIT)
26	150500 -001	TUBE, 7/8" ODT x 4-13/16" LG. (20" UNIT)
27	44507 -091	FTG., ELBOW STR., SOLDER 3/4" NOM.
28	91317 -091	FTG., REDUCER, SOLDER 1" NOM. x 3/4" NOM. (20" UNIT)
29	44494 -091	FTG., TEE, SOLDER 3/4" NOM. x 3/4" NOM. x 1/2" NOM.
30	89662 -091	TUBE, 5/8" ODT x 2-1/8" LG. (20" UNIT)
31	44832 -091	TUBE, 5/8" ODT x 1-7/8" LG. (16" UNIT)
32	89577 -091	FTG., TEE, SOLDER 3/4" NOM. x 3/4" NOM. x 3/4" NPT (20" UNIT)
33	91160 -091	FTG., ADAPTER, SOLDER, 1/2" NPT x 3/4" NOM. (20" UNIT)
34	83449 -005	TUBE, 7/8" ODT x1-1/4" NPT
35	129367 -567	DIFFUSER, STEAM, 3/4" NPT
36	93918 -463	TUBE, CONSTANT BLEED, S.D. (20" UNIT)
37	22711 -091	FTG., COMP. STR., 1/4" NPT x 5/16" ODT
38	40921 -091	TUBE, 5/16" ODT x 4-3/4" LG.
39	93918 -504	TUBE, 7/8" ODT x 10-3/4" LG. (20" UNIT)



NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

Figure 20. Lower Right Piping Components/Fittings - Single Door

CENTURY AND MILLENNIUM STERILIZERS

Lower Right Piping Components/Fittings - Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	6750 -091	FTG., COMP. ELL, 1/8" NPT x 5/16" ODT
2	136809 -797	TUBE, SEAL DRAIN, O.E., 5/16" ODT
3	7033 -091	FTG., COMP. ELL, 1/4" NPT x 5/16" ODT
4	80917 -091	FTG., COMP. STR., 1/8" NPT x 5/16" ODT
5		DRAIN LINE PIPING - 16" UNIT
	836 -042	■ BUSHING
	44499 -091	■ EL (SWEAT/NPT)
	90212 -091	■ FITTING EL (SWEAT)
	90227 -091	■ UNION, FITTING
	4930 -091	■ REDUCING TEE, 1/2" x 1/2" x 3/4"
	4931 -091	■ TEE, 1/2"
5		DRAIN LINE PIPING - 20" UNIT
	91158 -091	■ FITTING ADAPTOR (SWEAT x NPT)
	44507 -091	■ EL (SWEAT 3/4")
	44846 -091	■ FITTING UNION, SOLDER, 3/4" NOM (M) x 3/4" NPT
	91158 -091	■ ADAPTOR FITTING, 3/4" SWEAT x 3/4" NPT
	129070 -001	■ CROSS, 3/4" x 3/4" x 1/2" x 1/2"
	118372 -091	■ COUPLING
6	93918 -365	TUBE, PRESSURE SWITCH TO EXHAUST MANIFOLD, 5/16" ODT (16")
	93918 -454	TUBE, PRESSURE SWITCH TO EXHAUST MANIFOLD, 5/16" ODT (20")
7	150822 -802	BUSHING, PROBE, 1/2" NPT
8	150822 -845	BUSHING, RTD PROBE
9	150822 -801	BUSHING, RUBBER
10	4931 -091	TEE, 1/2" NPT
11		NOT USED
12		NOT USED
13		NOT USED
14	28899 -091	NIPPLE, 1/8" NPT x 1" LG.
15	4913 -091	TEE, RED, 1/4" NPT x 1/4" NPT x 1/8" NPT
16	3440 -091	PLUG, PIPE, 1/4" NPT
17	29172 -091	NIPPLE, 1/2" NPT x 3 1/2" LG.
18	1634 -091	ELBOW, STREET, 1/2" NPT
19	29162 -091	NIPPLE, 1/2" NPT x 1" LG.
20	33447 -091	BUSHING, RED, 1/2" NPT x 1/8" NPT
21	1636 -091	ELBOW, STREET, 3/4" NPT
22	29312 -091	NIPPLE, 3/4" NPT x 6-1/2" LG.
23	29290 -091	NIPPLE, 3/4" NPT x 1" LG.
24	84450 -001	COUPLING, RED., 1" NPT x 3/4" NPT
25	29294 -091	NIPPLE, 3/4" x 2" LG.
26	2903 -091	NUT, UNION, 3/4" NPT
27	4247 -091	SPUD, UNION, 3/4" NPT
28	1747 -091	THREAD END., FEMALE 3/4" NPT
29	1635 -091	ELBOW, 3/4" NPT
30	29302 -091	NIPPLE, 3/4" NPT x 4" LG.

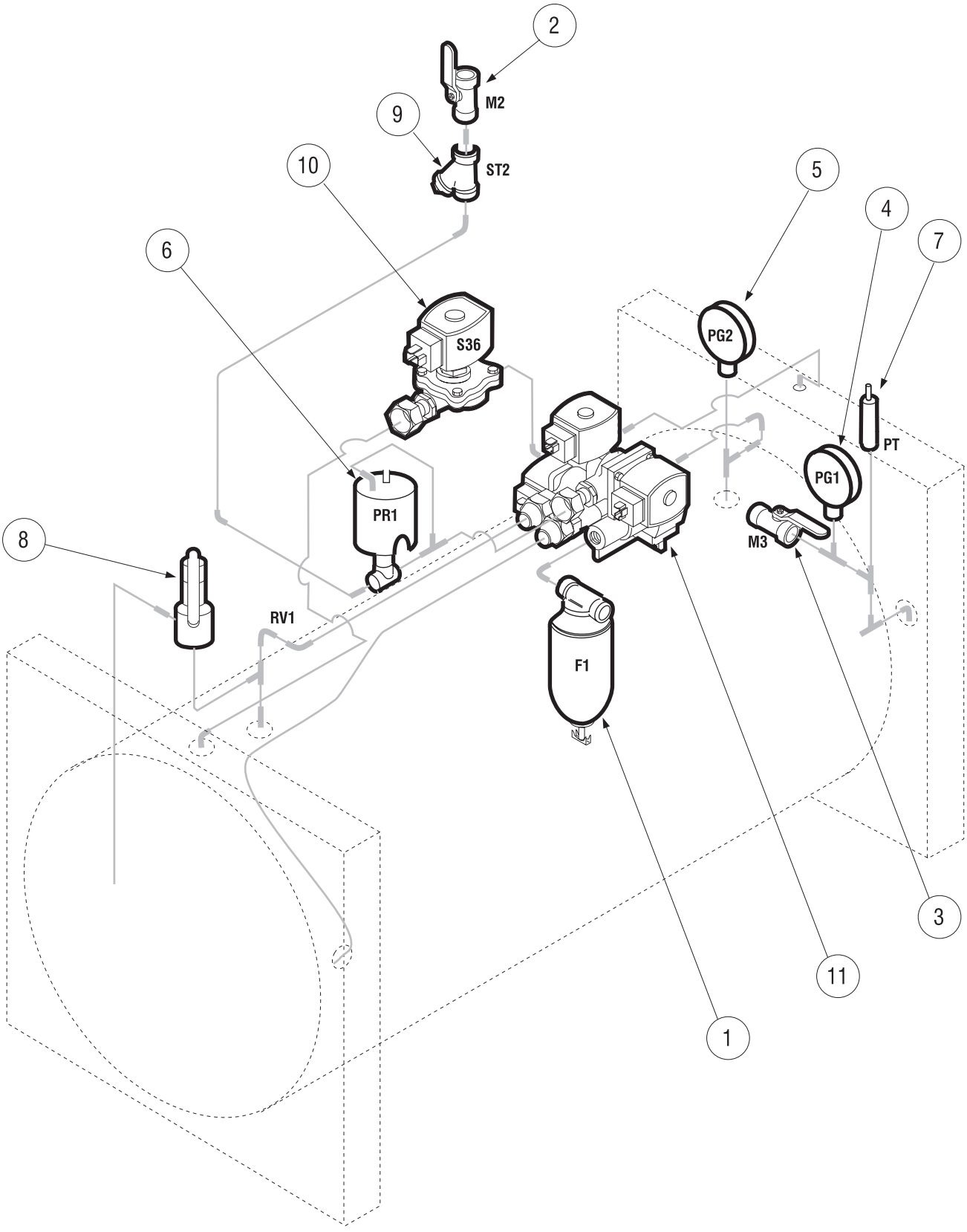


Figure 21. Upper Level Components - Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	93909 -592	FILTER, AIR, 1/2" NPT	(F1)
	129360 -802	■ ELEMENT	
2	93908 -065	BALL VALVE, 1/2" NPT (Steam)	(M2)
3	93918 -212	BALL VALVE, 1/4" NPT (Manual Exhaust)	(M3)
4	7822 -051	PRESSURE GAUGE-STEAM, CHAMBER (O.E.)	(PG1)
5	7871 -051	PRESSURE GAUGE-STEAM, JACKET	(PG2)
*6	136809 -750	REGULATOR, 3/8" NPT	(PR1)
	754359 -001	■ KIT, REPAIR	
7	136809 -787	TRANSDUCER, PRESSURE	(PT)
8	93918 -013	SAFETY VALVE, 1/2" NPT, (50 psi)	(RV1)
9	150828 -459	STRAINER, 1/2" NPT	(ST2)
	764326 -663	■ SCREEN, CONBRACO	
	764326 -727	■ O'RING, CONBRACO	
	764317 -906	■ SCREEN, SARCO	
10	93911 -986	VALVE, SOLENOID, 1/8" NPT (double door only)	(S36)
	764326 -479	■ KIT, REPAIR	
	764323 -941	■ COIL	
*11	146657 -787	MANIFOLD, STEAM SUPPLY, (See Fig. 27)	

**NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-3.*

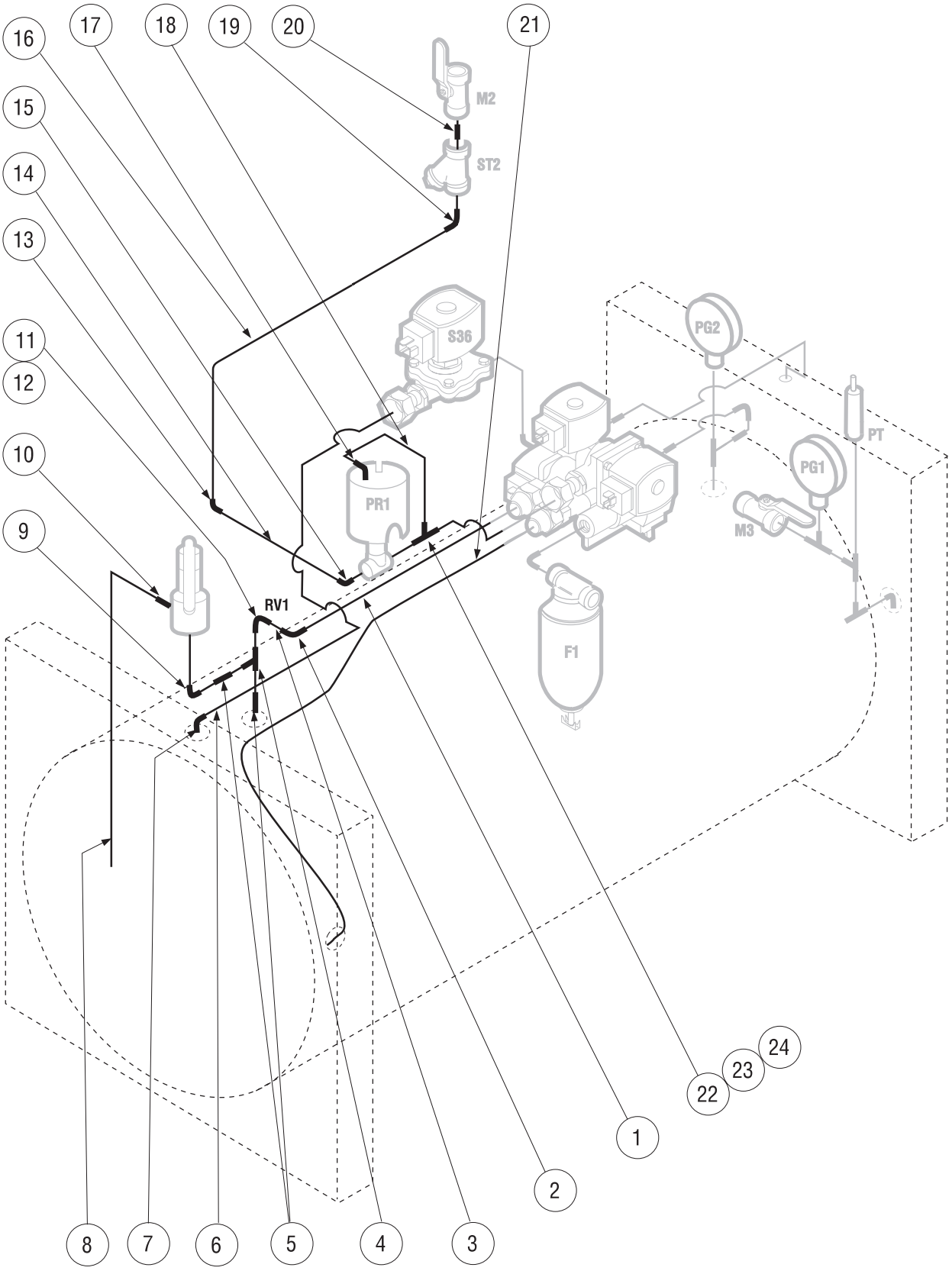


Figure 22. Upper Left Piping Components/Fittings - Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	90283 -091	TUBE, 5/8" ODT x 5-5/8" LG.	
2	90212 -091	FTG., ELBOW SOLDER, 1/2" NOM.	
3	89230 -091	TUBE, 5/8" ODT x 2-3/8" LG.	
4	4931 -091	TEE, 1/2" NPT	
5	29163 -091	NIPPLE, 1/2" NPT x 1-1/4" LG.	
6	136809 -796	TUBE, STEAM TO SEAL, N.O.E. (16")	
	136809 -813	TUBE, STEAM TO SEAL, N.O.E. (20")	
7	80917 -091	FITTING, COMP. STR, 1/8" NPT x 5/16" ODT	
8	136809 -785	TUBE, SAFETY VALVE VENT	
9	1633 -091	ELBOW, 1/2" NPT	
10	44846 -091	FITTING, UNION, SOLDER, 3/4" NPT x 3/4" NOM.	
11	118202 -091	NUT, FLARE, 5/8" ODT	
12	150822 -988	ELBOW, FLARE, 1/2" NPT x 5/8" ODT	
13	1622 -091	ELBOW, RED, 1/2" NPT x 3/8" NPT	
14	29031 -091	NIPPLE, 1- 3/8" NPT x 5-1/2" LG.	
15	1631 -091	ELBOW, STREET, 3/8" NPT	
16	29195 -091	NIPPLE, 1/2" NPT x 9-1/4" LG.	
17	26181 -091	FITTING, COMP. ELL, 1/8" NPT x 1/8" ODT	
18	R915 -043	TUBE, 1/8"	
19	1634 -091	ELBOW, STREET, 1/2" NPT	
20	29162 -091	NIPPLE, 1/2" NPT x 1" LG.	
21	146660 -180	TUBE, SEAL DRAIN, N.O.E. (20")	
22	4931 -091	1/2" TEE	
23	33447 -042	REDUCING BUSHING, 1/2" x 1/8"	
24	20344 -044	STRAIGHT COMP FTG	

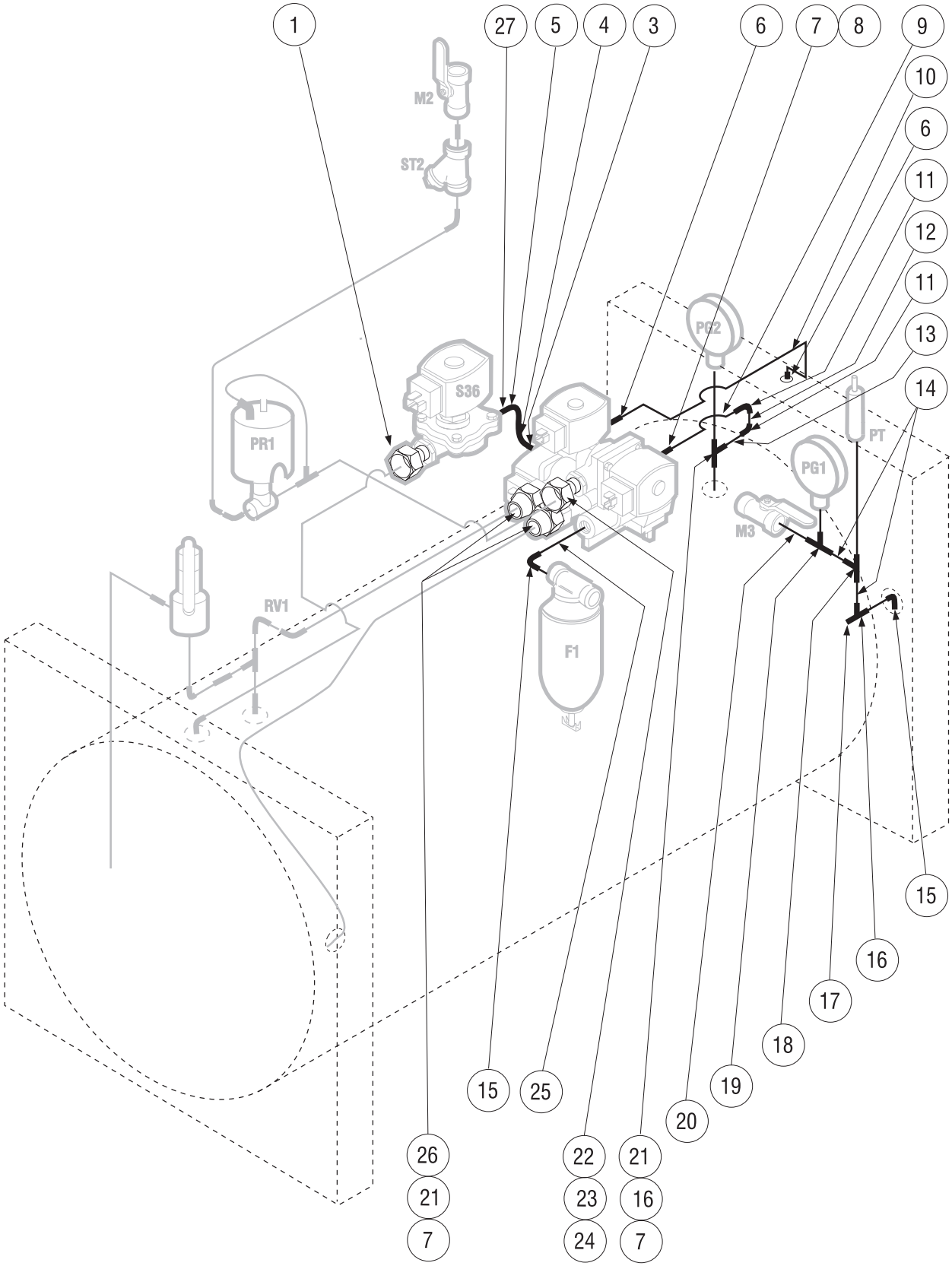
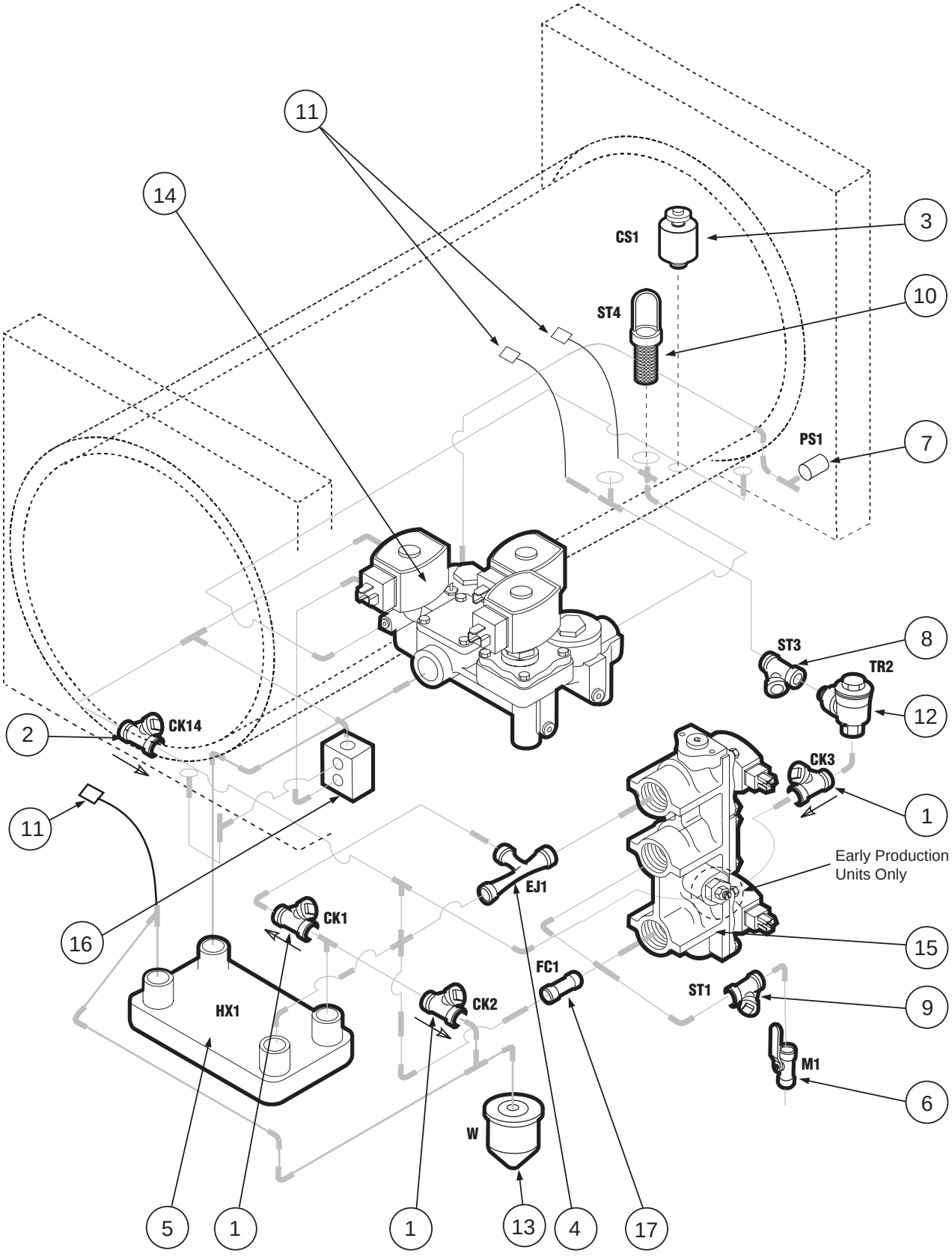


Figure 23. Upper Right Piping Components/Fittings - Double Door

CENTURY AND MILLENNIUM STERILIZERS

Upper Right Piping Components/Fittings - Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848			
ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	400009 -211	COMP FTG ELL, 1/8" NPT x 5/16" ODT	
2	29162 -091	NIPPLE, 1/2" NPT x 1" LG.	
3	2800 -091	NIPPLE, 1/8" NPT x 1-1/2"	
4	1615 -091	STREET EL	
5	1614 -091	ELBOW	
6	80917 -091	FITTING, COMP., STR., 1/8" NPT x 5/16" ODT	
7	118202 -091	NUT, FLARE, 5/8" ODT	
8	26181 -091	FITTING, COMP., ELL., 1/8" NPT x 1/8" ODT	
9	90297 -091	TUBE, 5/8" ODT x 2-7/8" LG.	
10	136809 -795	TUBE, STEAM TO SEAL, O.E., 5/16" ODT	
11	90212 -091	FTG., ELBOW, SOLDER, 1/2" NOM.	
12	90274 -091	TUBE, 5/8" ODT, 3-5/8" LG.	
13	90271 -091	TUBE, 5/8" ODT, 2-3/4" LG.	
14	28919 -091	NIPPLE, 1/4" NPT x 1-1/2" LG.	
15	1634 -091	ELBOW, STREET, 1/2" NPT	
16	91154 -091	TEE, STREET, 1/2" NPT	
17	3442 -091	PLUG, PIPE, 1/2" NPT	
18	4906 -091	TEE, 1/4" NPT	
19	4931 -091	TEE, 1/2" NPT	
20	28919 -091	NIPPLE, 1/4" 1-1/2" LG.	
21	150822 -991	FTG., FLARE STR., 1/2" NPT x 5/8" ODT	
22	837 -091	BUSHING, RED., 1/2" NPT x 3/8" NPT	
23	4076 -091	SPUD, UNION, 3/8" NPT	
24	2901 -091	NUT, UNION, 3/8" NPT	
25	29174 -091	NIPPLE, 1/2" NPT x 4" LG.	
26	150822 -992	FTG., FLARE, STR., 5/8" ODT x 1/2" NPT (FEMALE)	
27	28901 -091	NIPPLE	



NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

Figure 24. Lower Level Components - Double Door

CENTURY AND MILLENNIUM STERILIZERS

Lower Level Components - Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

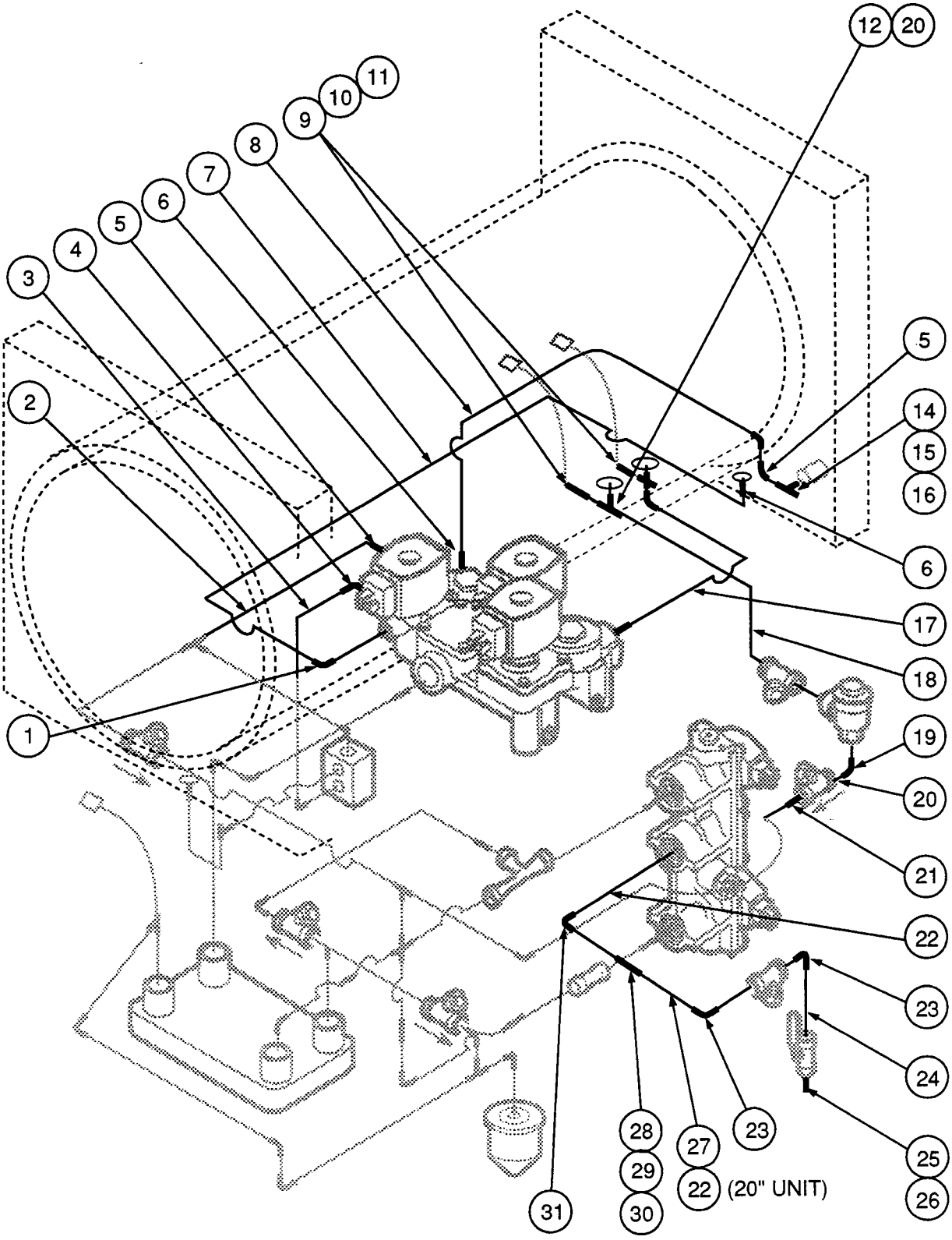
ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
1	150822 -354	CHECK VALVE, (swing), 1/2" NPT	(CK1, CK2, CK3)
	764319 -608	■ DISC ONLY	
2	10278 -091	CHECK VALVE, 1/4"	(CK14)
3	93918 -038	CHAMBER WATER SENSOR	(CS1)
4	83924 -001	EJECTOR, WATER	(EJ1)
5	**	HEAT EXCHANGER	(HX1)
6	93918 -066	BALL VALVE, 3/4" NPT (water)	(M1)
7	83865 -001	SWITCH, PRESSURE	(PS1, PS2)
8	150828 -459	STRAINER, 1/2" NPT	(ST3)
	764326 -663	■ SCREEN, CONBRACO	
	764326 -727	■ O'RING, CONBRACO	
	764317 -906	■ SCREEN, SARCO	
9	47708 -091	STRAINER, 3/4" NPT	(ST1)
	754616 -091	■ SCREEN, SARCO	
	764326 -673	■ SCREEN, UNITED BRASS	
10	93918 -035	CHAMBER DRAIN SCREEN	(ST4)
11	93911 -351	RTD (chamber, drain and jacket temperature)	(TP)
*12	129222 -001	TRAP, JACKET, 1/2" NPT	(TR2)
	764080 -001	■ KIT, REPAIR	
13	146660 -109	FUNNEL, WASTE	(W)
*14	146657 -788	MANIFOLD, EXHAUST, (See Fig. 28)	
*15	146657 -789	MANIFOLD, WATER, (See Fig. 29)	
*16	136809 -791	MANIFOLD ASSEMBLY/DOUBLE DOOR (See Fig. 30)	
17	83629 -001	FLOW CONTROL	(FC1)

**NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-3.*

*** Two versions of heat exchangers have been used. When replacing, check model number on heat exchanger and do the following:*

If model #5-685-04-007-002, then a kit must be ordered. For 16" units, order P-764328-456; for 20" units, order P-764328-457.

If model #5-693-04-010-003, order replacement heat exchanger P-136809-844.

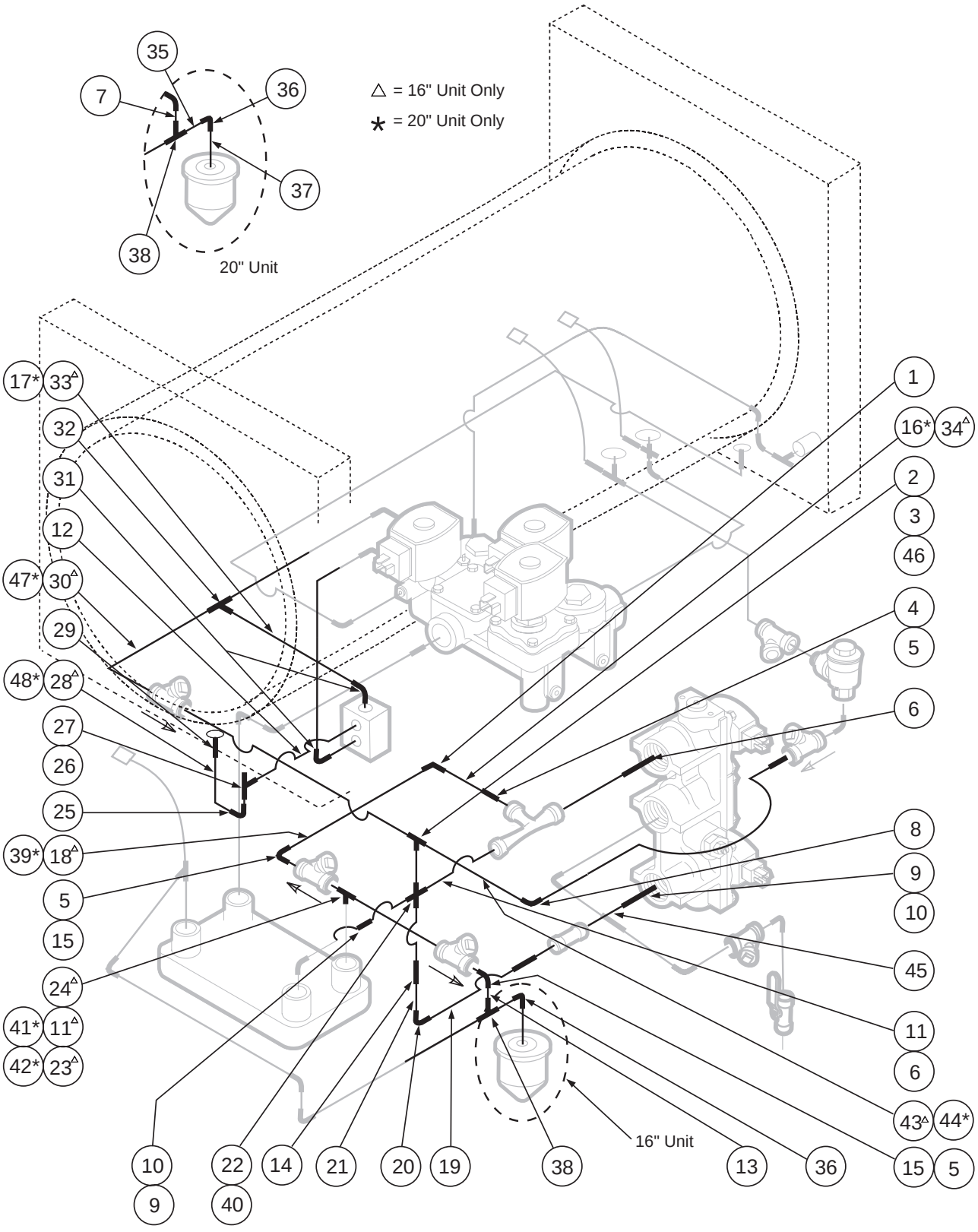


NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

Figure 25. Lower Right Piping Components/Fittings - Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	6750 -091	FTG., COMP. ELL, 1/8" NPT x 5/16" ODT
2	43450 -091	TUBE, 5/16" ODT x 6-5/8" LG.
3	93918 -364	TUBE, SEAL VACUUM, N.O.E., 5/16" ODT (16" UNIT)
	93918 -461	TUBE, SEAL VACUUM, N.O.E., 5/16" ODT (20" UNIT)
4	22711 -091	FTG., COMP. STR., 1/4" NPT x 5/16" ODT
5	7033 -091	FTG., COMP. ELL, 1/4" NPT x 5/16" ODT
6	80917 -091	FTG., COMP. STR., 1/8" NPT x 5/16" ODT
7	136809 -797	TUBE, SEAL DRAIN, O.E., 5/16" ODT
8	93918 -365	TUBE, PRESS SW. TO EXH. MANIFOLD, 5/16" ODT (16")
	93918 -454	TUBE, PRESS SW. TO EXH. MANIFOLD, 5/16" ODT (20")
9	150822 -802	BUSHING, PROBE, 1/2" NPT
10	150822 -845	BUSHING, RTD PROBE
11	150822 -801	BUSHING, RUBBER
12	4931 -091	TEE, 1/2" NPT
13		NOT USED
14	4913 -091	TEE, RED., 1/4" NPT x 1/4" NPT x 1/8" NPT
15	28899 -091	NIPPLE, 1/8" NPT x 1" LG.
16	3440 -091	PLUG, PIPE, 1/4" NPT
17		DRAIN LINE PIPING - 16" UNIT
	836 -042	■ BUSHING
	44499 -091	■ EL (SWEAT/NPT)
	90212 -091	■ FITTING EL (SWEAT)
	90227 -091	■ UNION, FITTING
	4930 -091	■ REDUCING TEE, 1/2" x 1/2" x 3/4"
	4931 -091	■ TEE, 1/2"
17		DRAIN LINE PIPING - 20" UNIT
	91158 -091	■ FITTING ADAPTOR (SWEAT x NPT)
	44507 -091	■ EL (SWEAT 3/4")
	44846 -091	■ FITTING UNION, SOLDER, 3/4" NOM. (M) x 3/4" NPT
	91158 -091	■ ADAPTOR FITTING, 3/4" SWEAT x 3/4" NPT
	129070 -001	■ CROSS, 3/4" x 3/4" x 1/2" x 1/2"
	118372 -091	■ COUPLING
18	29172 -091	NIPPLE, 1/2" NPT x 3 1/2" LG.
19	1634 - 091	ELBOW, STREET, 1/2" NPT
20	29162 -091	NIPPLE, 1/2" NPT x 1" LG.
21	33447 - 091	BUSHING, RED, 1/2" NPT x 1/8" NPT
22	29302 - 091	NIPPLE, 3/4" NPT x 4" LG.
23	1636 -091	ELBOW, STREET, 3/4" NPT
24	29312 -091	NIPPLE, 3/4" x 6-1/2" LG.
25	29290 -091	NIPPLE, 3/4" NPT x 1" LG.
26	84450 -001	COUPLING, RED., 1" NPT x 3/4" NPT
27	29294 -091	NIPPLE, 3/4" NPT x 2" LG.
28	2903 - 091	NUT, UNION, 3/4" NPT
29	4247 - 091	SPUD, UNION, 3/4" NPT
30	1747 - 091	THREAD END., FEMALE 3/4" NPT
31	1635 -091	ELBOW, 90º, 3/4" NPT



NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

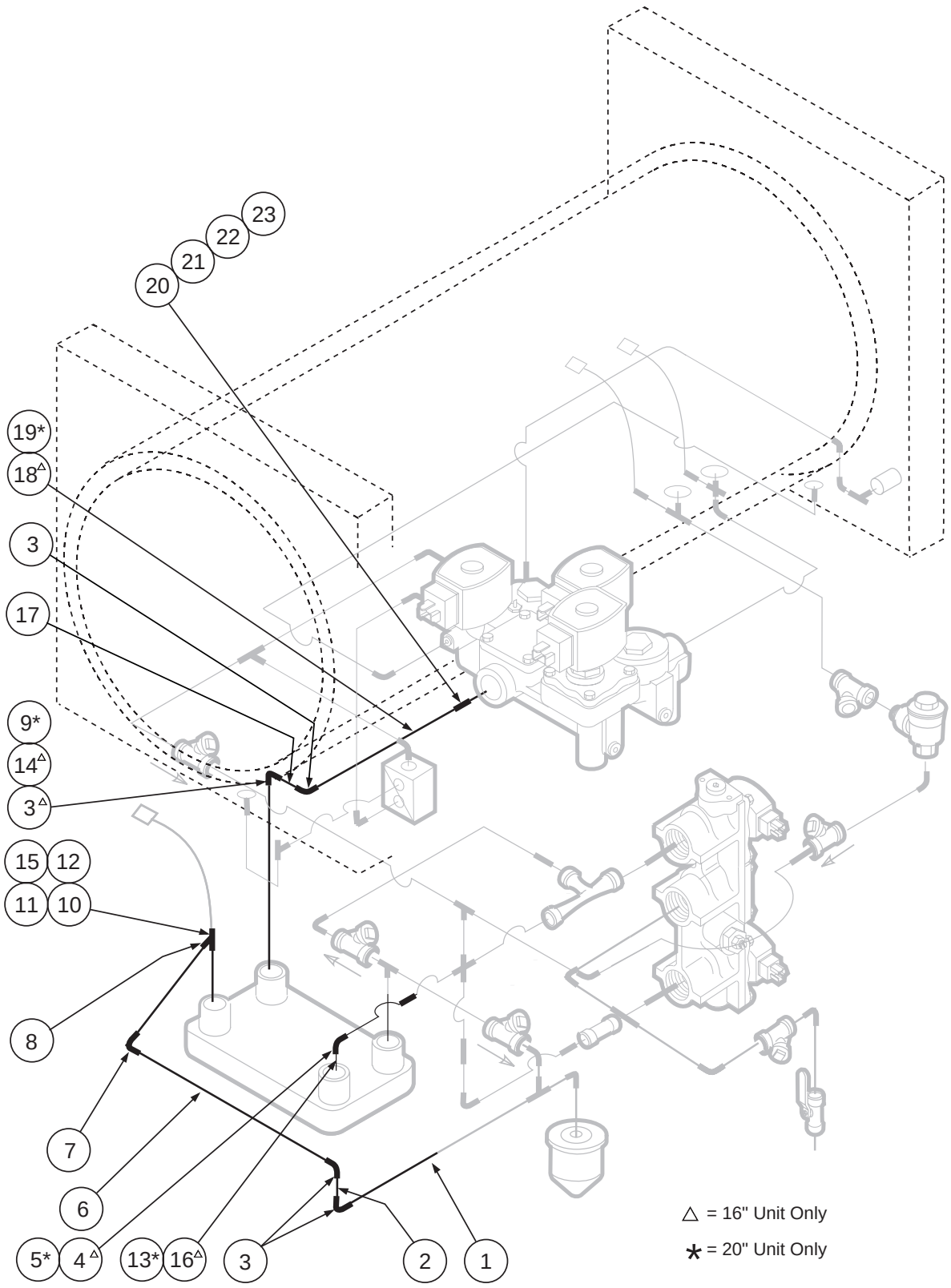
Figure 26. Lower Center Piping Components/Fittings - Double Door

CENTURY AND MILLENNIUM STERILIZERS

Lower Level Piping Components/Fittings - Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	90212 -091	FTG., ELBOW, SOLDER, 1/2" NOM.
2	21549 -091	FTG., COMP. TEE, 5/16" OPT x 5/16" ODT x 1/8" NPT
3	22711 -091	FTG., COMP. STR. 1/4" NPT x 5/16" ODT
4	150822 -991	FTG., FLARE, 1/2" NPT x 5/8" ODT
5	118202 -091	NUT, FLARE, 5/8" ODT
6	836 -091	BUSHING, RED, 3/4" NPT x 1/2" NPT
7	89662 -091	TUBE, 5/8" ODT x 2-1/8" LG. (20" UNIT)
8	6750 -091	FTG., COMP. ELL, 1/8" NPT x 5/16" ODT
9	2903 -091	NUT, UNION, 3/4" NPT
10	4247 -091	SPUD, UNION, 3/4" NPT
11	29162 -091	NIPPLE, 1/2" NPT x 1" LG.
12	28900 -091	NIPPLE, 1/8" NPT x 1-1/2" LG.
13	129356 -514	TUBE, 5/8" ODT x 2-7/16" LG. (16" UNIT)
14	91158 -091	FTG., ADAPTER, SOLDER 3/4" NPT x 3/4" NOMINAL
15	150822 -988	ELBOW, FLARE, 1/2" NPT x 5/8" ODT
16	90267 -091	TUBE, 5/8" ODT x 2-1/4" LG. (20" UNIT)
17	129367 -614	TUBE, SEAL BLEED, NOE, 5/16" ODT (20" UNIT)
18	90517 -091	TUBE, 5/8" ODT x 6-1/8" LG. (16" UNIT)
19	80030 -091	TUBE, 7/8" ODT 1-5/8" LG.
20	44495 -091	FTG., ELBOW, SOLDER 3/4" NOM.
21	89556 -091	TUBE, 7/8" ODT x 3 1/4" LG.
22	1345 -091	CROSS, 3/4" NPT
23	29290 -091	NIPPLE, 3/4" NPT x 1" LG.
24	4930 -091	TEE, RED, 1/2" NPT x 1/2" NPT x 3/4" NPT
25	7033 -091	FTG., COMP. ELBOW., 1/4" NPT x 5/16" ODT
26	4913 -091	TEE, RED., 1/4" NPT x 1/4" NPT x 1/8 NPT
27	3440 -091	PLUG, PIPE, 1/4" NPT
28	136809 -798	TUBE, SEAL DRAIN, N.O.E., 5/16" ODT (16" UNIT)
29	80917 -091	FTG., COMP. STR., 5/16" ODT x 1/8" NPT
30	93918 -363	TUBE, CONSTANT BLEED, D.D., 5/16" ODT (16" UNIT)
31	400009 -211	FTG., COMP. ELBOW., 1/8" NPT x 5/16" ODT
32	39227 -091	FTG., COMP. TEE, 5/16" ODT
33	129367 -576	TUBE, SEAL BLEED, N.O.E., 5/16" ODT (16" UNIT)
34	44832 -091	TUBE, 5/8" ODT x 1-7/8" LG. (16" UNIT)
35	150500 -001	TUBE, 7/8" ODT x 4-13/16" LG. (20" UNIT)
36	44507 -091	FTG., ELBOW, STR., SOLDER, 3/4" NOM.
37	91317 -091	FTG., REDUCER, SOLDER, 1" NOM. x 3/4" NOM. (20" UNIT)
38	44494 -091	FTG., TEE, SOLDER, 3/4" NOM. x 3/4" NOM. x 1/2" NOM. (20" UNIT)
39	83464 -006	TUBE, 5/8" ODT x 11-3/8" LG. (20" UNIT)
40	129367 -567	DIFFUSER, STEAM, 3/4" NPT
41	89577 -091	FTG., TEE, SOLDER, 3/4" NOM. x 3/4" NOM. x 3/4" NPT (20" UNIT)
42	91160 -091	FTG., ADAPTER, SOLDER, 1/4" NPT x 3/4" NOM. (20" UNIT)
43	93918 -366	TUBE (16" UNIT)
44	93918 -464	TUBE (20" UNIT)
45	1747 -091	THREAD END, FEMALE, 3/4" NPT
46	40921 -091	TUBE, 5/16" ODT x 4-3/4" LG.
47	93918 -462	TUBE, CONSTANT BLEED, D.D., 5/16" ODT (20" UNIT)
48	146660 -180	TUBE, SEAL DRAIN, NOE, 5/16" ODT (20" UNIT)



NOTE: Piping configuration shown is for current units with model #5-693-04010-003 Heat Exchanger.

Figure 27. Lower Left Piping Components/Fittings - Double Door

CENTURY AND MILLENNIUM STERILIZERS

Lower Level Piping Components/Fittings - Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	83449 -002	TUBE, 7/8" ODT x 2-1/4" LG.
2	83449 -001	TUBE, 7/8" ODT x 2-1/2" LG.
3	44495 -091	FTG., ELBOW, SOLDER 3/4" NOM.
4	1636 -091	ELBOW, STREET, 3/4" NPT
5	1635 -091	ELBOW, 90°, 3/4" NPT (20" UNIT)
6	93918 -502	TUBE, 7/8" ODT x 12-11/16" LG. (16" UNIT)
	93918 -507	TUBE, 7/8" ODT x 13-5/32" LG. (20" UNIT)
7	89721 -091	FTG., ELBOW, 45°, 3/4" NOM. FTG. x 7/8" ODT
8	129367 -826	TEE, 3/4" NPT x 3/4" NPT x 7/8" ODT
9	44500 -091	FTG., ELBOW STR., SOLDER 3/4" NPT x 3/4" NOM.
10	150822 -802	BUSHING, PROBE, 1/2" NPT
11	150822 -845	BUSHING, RTD PROBE
12	150822 -801	BUSHING, RUBBER
13	29295 -091	NIPPLE, 3/4" NPT x 2-1/4" LG. (20" UNIT)
14	91159 -091	ADAPTER (F), 7/8" ODT x (M) 3/4" NPT (16" UNIT)
15	836 -091	BUSHING, RED., 3/4" NPT x 1/2" NPT
16	29300 -091	NIPPLE, 3/4" NPT x 3-1/2" LG. (16" UNIT)
17	50518 -091	TUBE, 7/8" ODT x 2-1/8" LG. (16" UNIT)
	89520 -091	TUBE, 7/8" ODT x 1-3/4" LG. (20" UNIT)
18	93918 -503	TUBE, 7/8" ODT x 6-3/8" LG. (16" UNIT)
19	93918 -504	TUBE, 7/8" ODT x 10-3/4" LG. (20" UNIT)
20	91158 -091	FTG., ADAPTER, SOLDER, 3/4" NPT x 3/4" NOM.
21	1747 -091	THREAD END, FEMALE, 3/4" NPT
22	4247 -091	SPUD, UNION, 3/4" NPT
23	2903 -091	NUT, UNION, 3/4" NPT

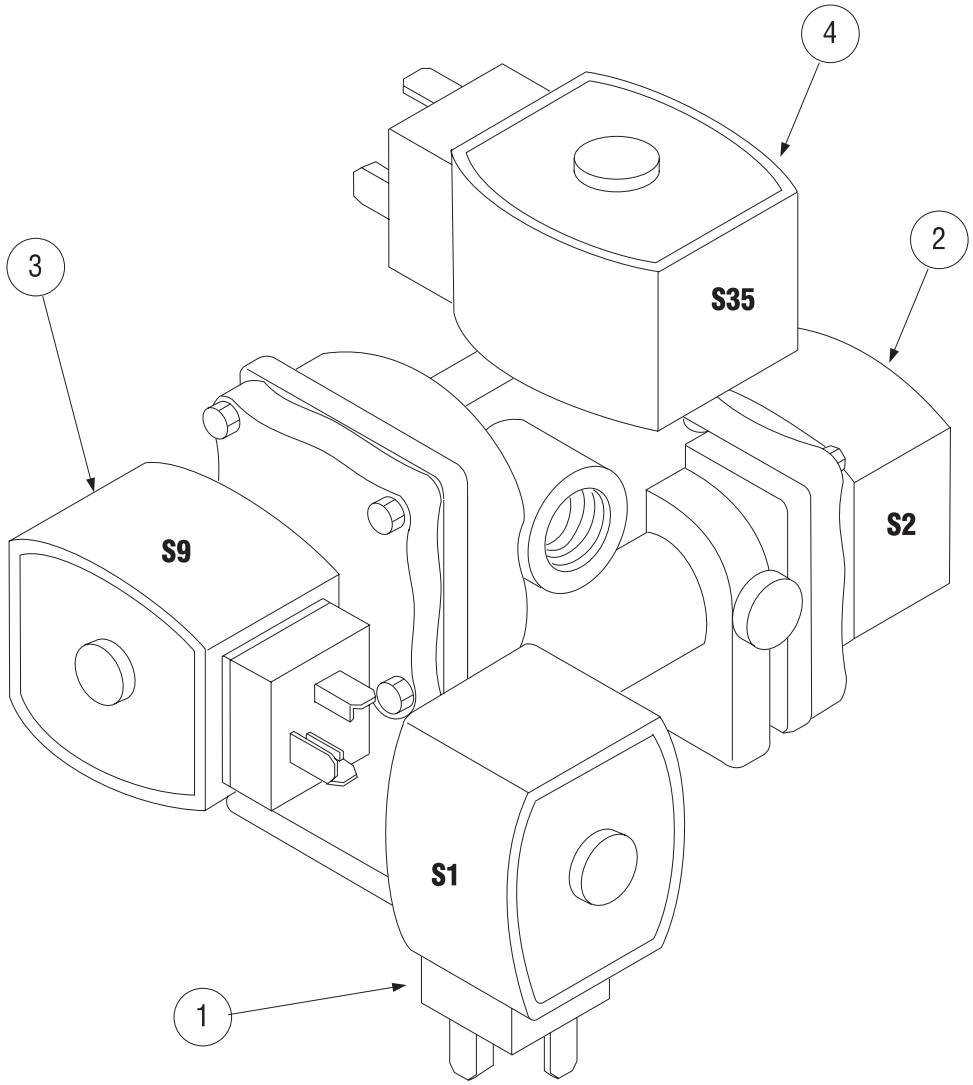


Figure 28. Steam Supply Manifold Components

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
*	146657 -787	STEAM SUPPLY MANIFOLD.....	
1	N/A	SOLENOID VALVE, (Airbreak)	(S1)
	764326 -477	■ REPAIR KIT	
	764326 -632	■ COIL	
	764326 -699	■ SEAT ONLY	
2	N/A	SOLENOID VALVE, (Steam to Chamber)	(S2)
	764326 -478	■ REPAIR KIT	
	764323 -941	■ COIL	
	764326 -698	■ SEAT ONLY	
3	N/A	SOLENOID VALVE, (Steam to Jacket)	(S9)
	764326 -478	■ REPAIR KIT	
	764323 -941	■ COIL	
	764326 -698	■ SEAT ONLY	
4	N/A	SOLENOID VALVE, (OE Door Seal)	(S35)
	764326 -479	■ REPAIR KIT	
	764326 -941	■ COIL	
	764326 -700	■ SEAT ONLY	

**NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-2.*

Complete Seat Package (1 of each) is available for this unit. Refer to page 1-2.

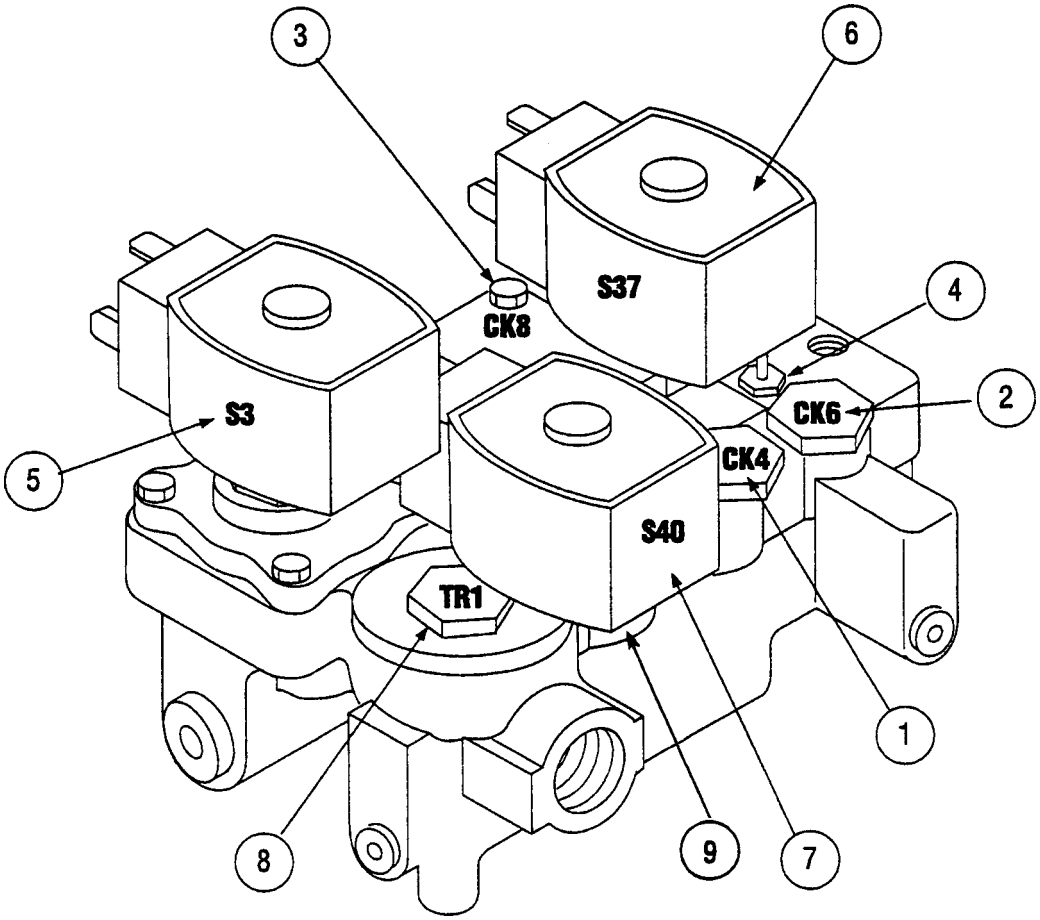


Figure 29. Exhaust Manifold Components

CENTURY AND MILLENNIUM STERILIZERS

Exhaust Manifold Components

Call STERIS Customer Service For Ordering Parts 1-800-333-8848			
ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
*	146657 -788	EXHAUST MANIFOLD	
1	N/A	CHECK VALVE	(CK4)
	764326 -485	■ REPAIR KIT	
	764326 -702	■ SEAT ONLY	
2	N/A	CHECK VALVE	(CK6)
	764326 -485	■ REPAIR KIT	
	764326 -702	■ SEAT ONLY	
3	N/A	CHECK VALVE	(CK8)
	764326 -484	■ REPAIR KIT	
	764326 -697	■ SEAT ONLY	
4	N/A	FLOW CONTROL VALVE	(FC2)
	764326 -485	■ REPAIR KIT	
	764326 -698	■ SEAT ONLY	
	764326 -702	■ SEAT ONLY	
5	N/A	SOLENOID VALVE, (Fast Exhaust)	(S3)
	764326 -482	■ REPAIR KIT	
	764323 -941	■ COIL	
	764326 -696	■ SEAT ONLY	
6	N/A	SOLENOID VALVE, (OE Door Exhaust)	(S37)
	764326 -479	■ REPAIR KIT	
	764323 -941	■ REPAIR KIT	
	764326 -700	■ SEAT ONLY	
7	N/A	SOLENOID VALVE	(S40)
	764326 -483	■ REPAIR KIT	
	764323 -941	■ COIL	
	764326 -701	■ SEAT ONLY	
8	N/A	STEAM TRAP	(TR1)
	764080 -001	■ REPAIR KIT	
	764326 -641	■ CAP ONLY	
9	764328 -531	ADAPTER FITTING (Fits Between S40 and Manifold)	
		**NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-2.*	
		Complete Seat Package (1 of each) is available for this unit. Refer to page 1-2.	

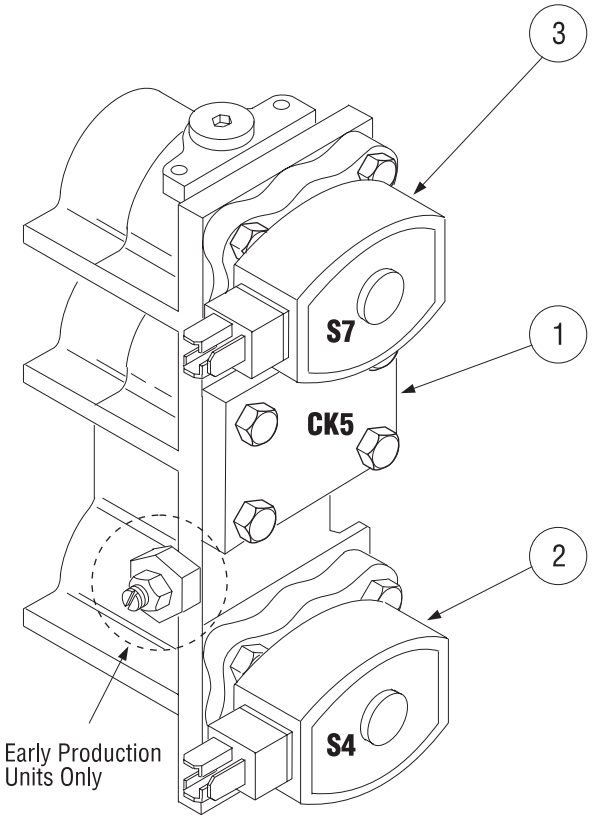


Figure 30. Water Manifold Components

CENTURY AND MILLENNIUM STERILIZERS

Water Supply Manifold Components

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
*	146657 -789	WATER MANIFOLD	
1	N/A	CHECK VALVE.....	(CK5)
	764326 -622	■ REPAIR KIT	
	764326 -697	■ SEAT ONLY	
2	N/A	SOLENOID VALVE, (Cooling Water).....	(S4)
	764326 -621	■ REPAIR KIT	
	764323 -940	■ COIL	
	764326 -696	■ SEAT ONLY	
3	N/A	SOLENOID VALVE, (Vacuum Water)	(S7)
	764326 -621	■ REPAIR KIT	
	764323 -940	■ COIL	
	764326 -696	■ SEAT ONLY	
		**NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-2.*	
		Complete Seat Package (1 of each) is available for this unit. Refer to page 1-2.	

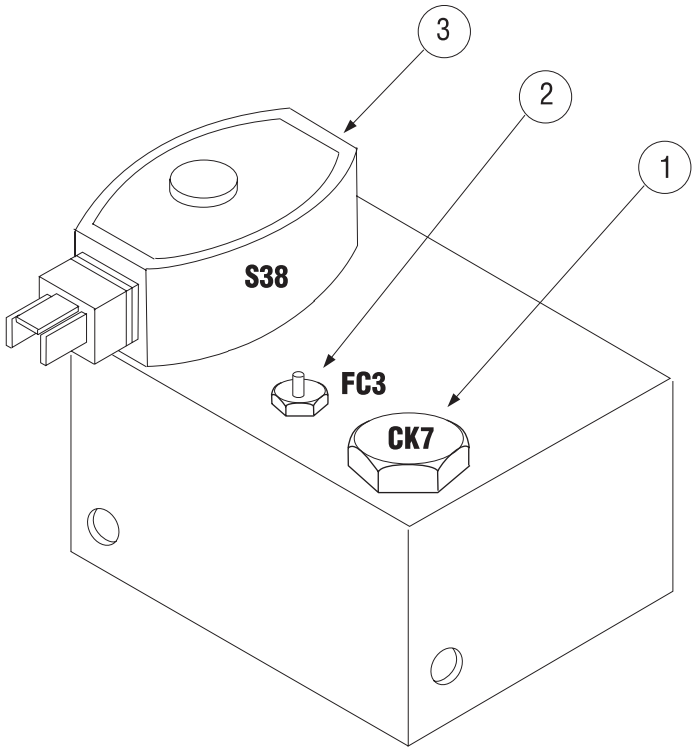


Figure 31. Double Door Manifold Add-On Components

Call STERIS Customer Service For Ordering Parts 1-800-333-8848			
ITEM NO.	PART NUMBER	DESCRIPTION	(DESIGNATION ON SCHEMATIC)
*	136809 -791	DOUBLE DOOR MANIFOLD ADD-ON	
1	N/A	CHECK VALVE	(CK7)
	764326 -485	■ REPAIR KIT	
	764326 -702	■ SEAT ONLY	
2	N/A	FLOW, CONTROL VALVE	(FC3)
	764326 -485	■ REPAIR KIT	
	764326 -702	■ SEAT ONLY	
3	N/A	SOLENOID VALVE, (N.O.E. Door Seal)	(S38)
	764326 -479	■ REPAIR KIT	
	764323 -941	■ COIL	
	764326 -700	■ SEAT ONLY	
		**NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-3.*	
		Complete Seat Package (1 of each) is available for this unit. Refer to page 1-3.	

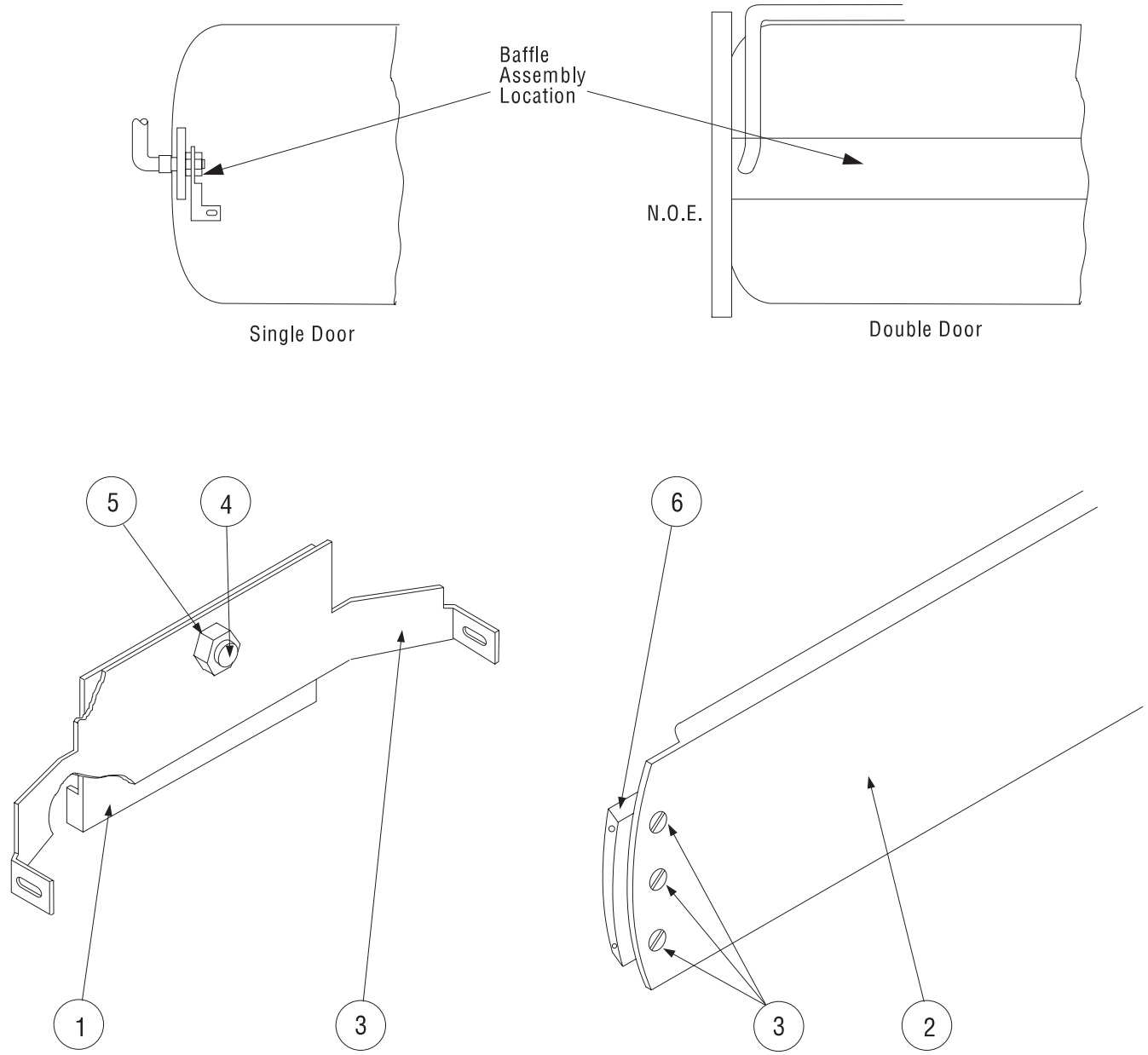


Figure 32. Baffle Assembly

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	136809 -715	BAFFLE, 16" SINGLE DOOR
	136809 -777	BAFFLE, 20" SINGLE DOOR
2	136809 -769	BAFFLE, 16" DOUBLE DOOR
	136809 -837	BAFFLE, 20" DOUBLE DOOR
3	136809 -720	BRACKET, SHELF MTG., 16"
	134473 -193	BRACKET, SHELF MTG., 20"
4	920351 -001	BUSHING
5	82031 -001	LOCK NUT, 3/4" - 16 UNF-2B
6	93918 -088	PLATE, BAFFLE MTG., 20"
7	129367 -407	SCREW, PAN HD, SELF-TAPPING, #8-32 x 1/4"

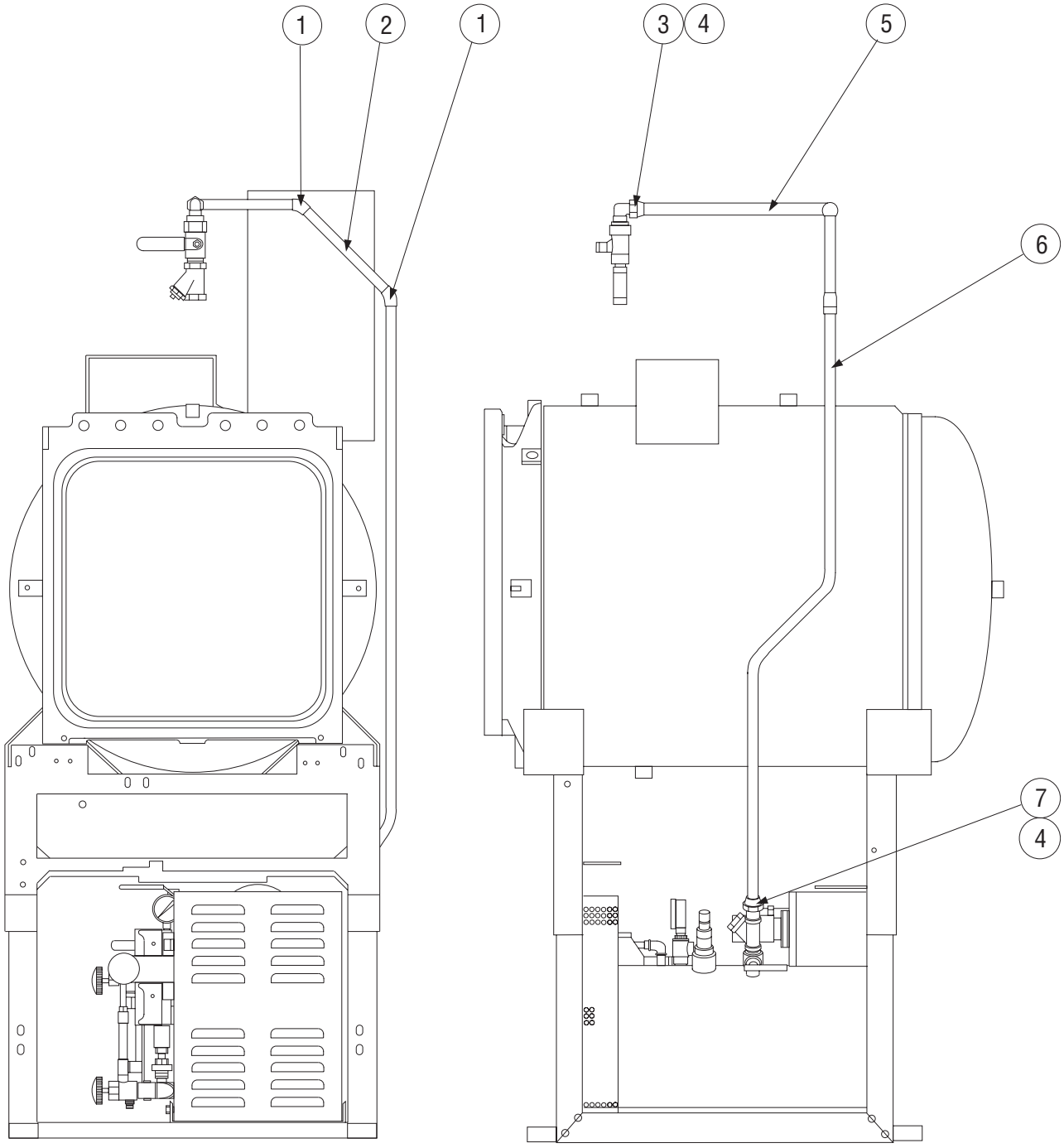


Figure 33. Steam Generator Piping

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	89269 -091	FTG., ELBOW 45°, SOLDER, 1/2" NOM.
2	119077 -091	TUBE, 5/8" ODT x 9" LG.
3	150822 -988	ELL, FLARED, 5/8" ODT x 1/2" NPT
4	118202 -091	NUT, FLARED, 5/8" ODT
5	93918 -440	TUBE, STEAM
6	136809 -793	TUBE, GEN. STEAM SUPPLY
7	150822 -991	FTG., FLARED, STR., 5/8" ODT x 1/2" NPT

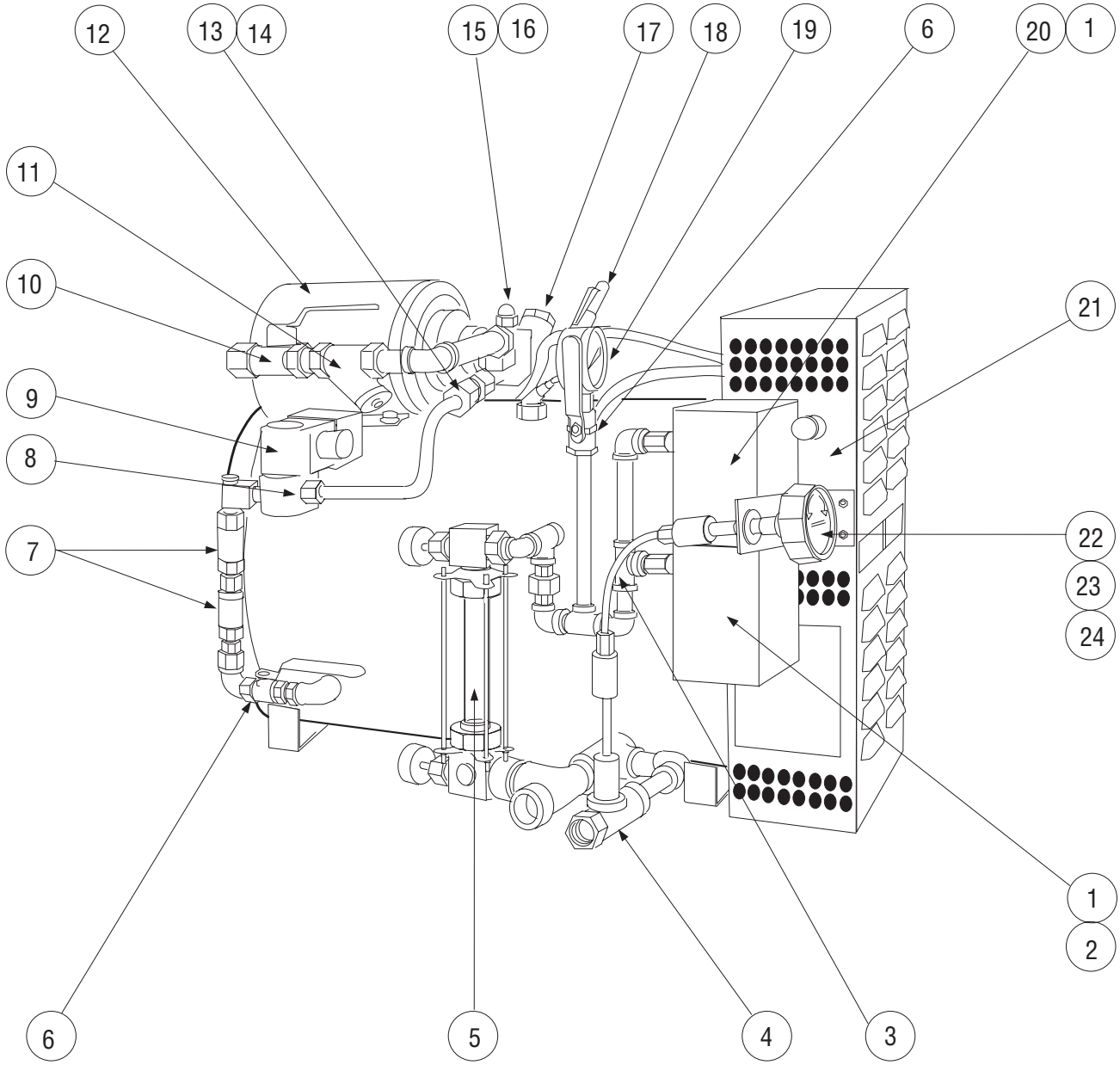
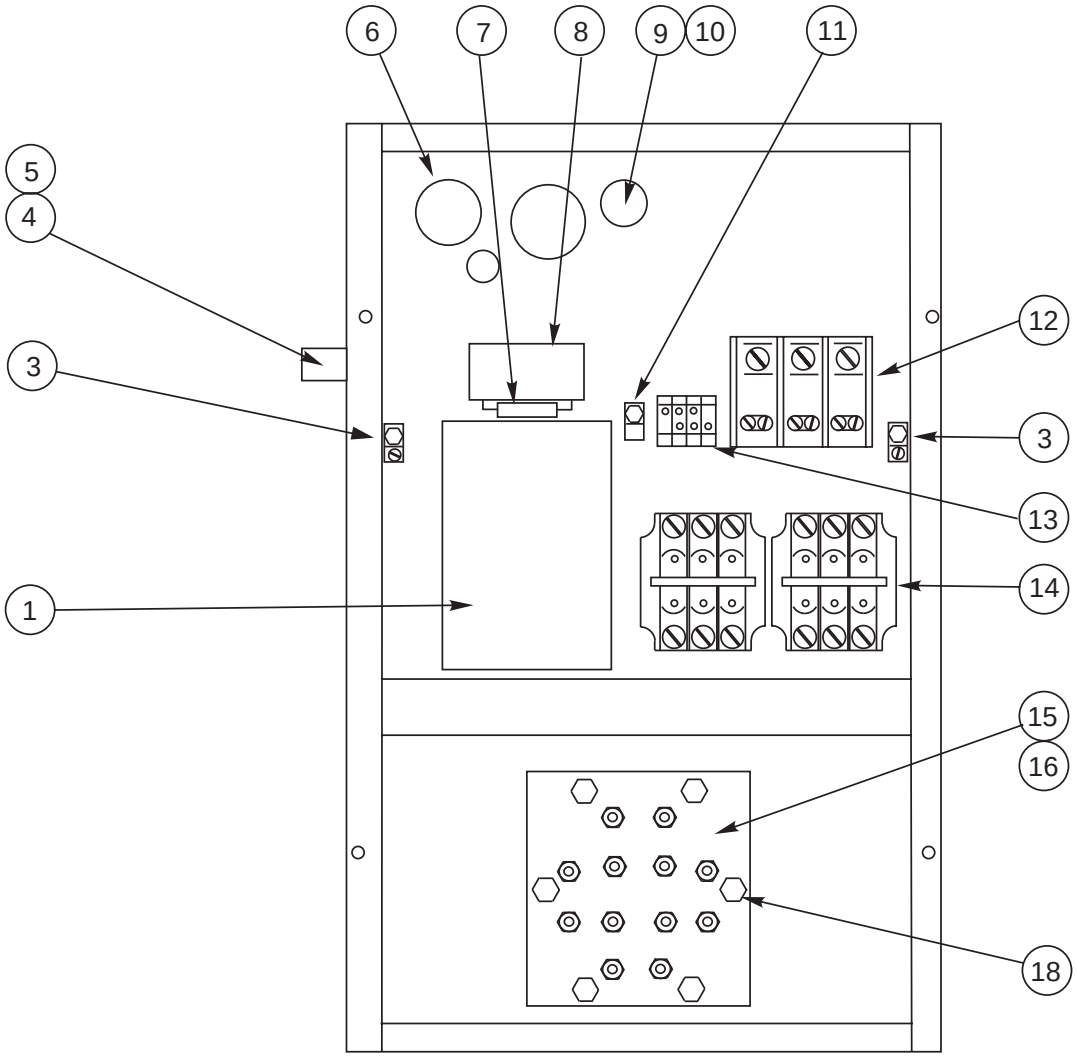


Figure 34. Electric Steam Generator - 30 KW

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	764326 -360	FTG. SPEC.
2	764323 -470	PRESSURE CONTROL, Operating
3	89881 -045	SHAFT, FLEXIBLE
4	93902 -921	VALVE - BALL, 1/2" NPT
5		WATER LEVEL SIGHT GLASS ASSEMBLY (See Figure 32)
6	764326 -576	VALVE, Ball, 1/4" NPT
7	764321 -287	VALVE, Check
8	46365 -091	COMPRESSION FITTING, 3/8"C x 1/4" NPT
9	764323 -548	VALVE, Solenoid Water Feed, 1/4"
	764323 -595	■ KIT, REPAIR
10	93910 -480	VALVE, Ball, 1/2" NPT
11	129357 -906	STRAINER, 1/2" NPT
	764320 -891	■ SCREEN, STRAINER
	764326 -727	■ O'RING
12	764323 -487	MOTOR, 1/4 HP, 120V
13	49337 -091	FLOW CONTROL, 1 GPM, 3/8" NPT
14	764324 -567	COMPRESSION FITTING, 3/8"C x 3/8" NPT
15	764323 -491	CLAMP, Pump Mounting
16	764323 -551	PUMP, .58 GPM
17	764323 -514	VALVE, Ball, 1/2" NPT (STEAM OUTLET)
18	764323 -459	VALVE, Safety
19	750467 -091	GAUGE, Pressure
20	764323 -471	PRESSURE CONTROL, High Level (Manual Reset)
21		CONTROL PANEL (See Fig. 34)
22	8605 -042	NUT, HANDWHEEL
23	54899 -091	HANDWHEEL
24	90833 -091	DECAL
	755716 -255	PROBE, LOW WATER CUTOFF (NOT SHOWN)
	136809 -792	16" STEAM SUPPLY TUBE (NOT SHOWN)
	136809 -793	20" STEAM SUPPLY TUBE (NOT SHOWN)
	764323 -325	TUBE, ISOLATOR (NOT SHOWN)
	755716 -254	PROBE - WATER LEVEL (NOT SHOWN)



NOTE: Sequentially torque heater bolts to 15-16 ft/lbs.

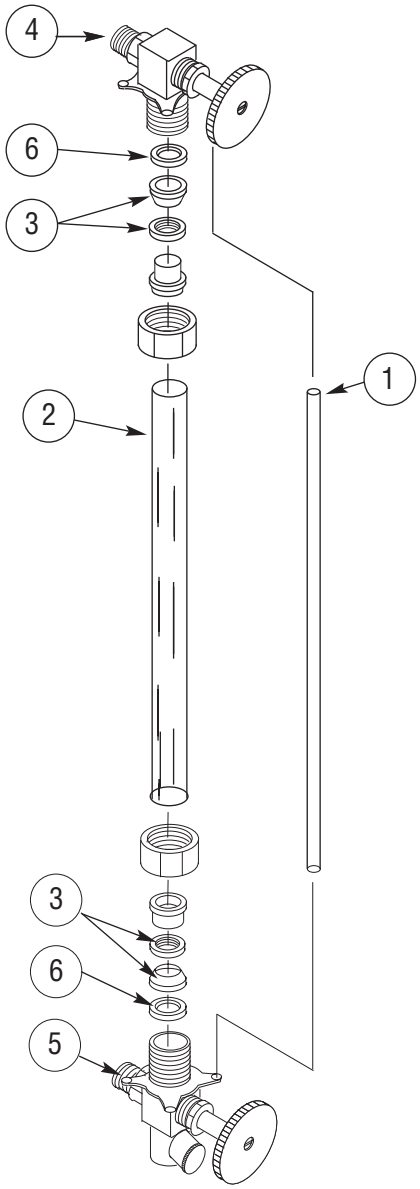
Figure 35. Electric Steam Generator - 30 KW

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	764326 -884	CONTROL, Water Feed & LWCO (Before date code 245LP)
	764326 -887	RELAY, Pump Motor
	764328 -355	CONTROL, Water Feed & LWCO (After date code 245LP)
	764326 -233	■ CONTACTOR, Pump Motor
2		NOT USED
3	764323 -333	LUG, Grounding
4	764324 -556	FUSE, 10 Amp
5	764323 -525	FUSE HOLDER
6	764325 -684	CONNECTOR (AUS)
7	764323 -341	RESISTOR
8	764323 -557	RELAY, Control, 120V Coil (1CR)
9	93909 -232	CONNECTOR (P100)
10	129262 -003	CONTACT, PIN
11	764323 -332	LUG, Grounding
12	764323 -446	TERMINAL BLOCK, Power Dist.
	764323 -641	TERMINAL BLOCK, Power Dist. (3 Req'd.)[2]
	764323 -640	TERMINAL BLOCK, End (1 Req'd)[2]
13	150461 -001	TERMINAL BLOCK, Control Circuit
14	759747 -001*	CONTACTOR, Power, 50A, 120 V Coil[1]
15	764323 -549	HEATER, 240V 30KW, Three Phase (With Gasket)
	764323 -550	HEATER, 440/480V 30KW, Three Phase (With Gasket)
	764328 -020	HEATER, 208V 30KW, Three Phase (With Gasket)
	764323 -639	HEATER, 380/415V, 30 KW, Three Phase (With Gasket)
16	764323 -527	GASKET, Heater
17		NOT USED
18	764323 -643	BOLT, HEATER
	41293 -091	RELAY (2CR) (NOT SHOWN)[2]

** NOTE: [1] One contactor required for 380/415 or 440/480V, three phase. Two contactors required for 208 or 240V, three phase.*

[2] For 380/415V units only.



CHS (Square Body)

Figure 36. Water-Level Sight Glass Assembly - Electric Steam Generator

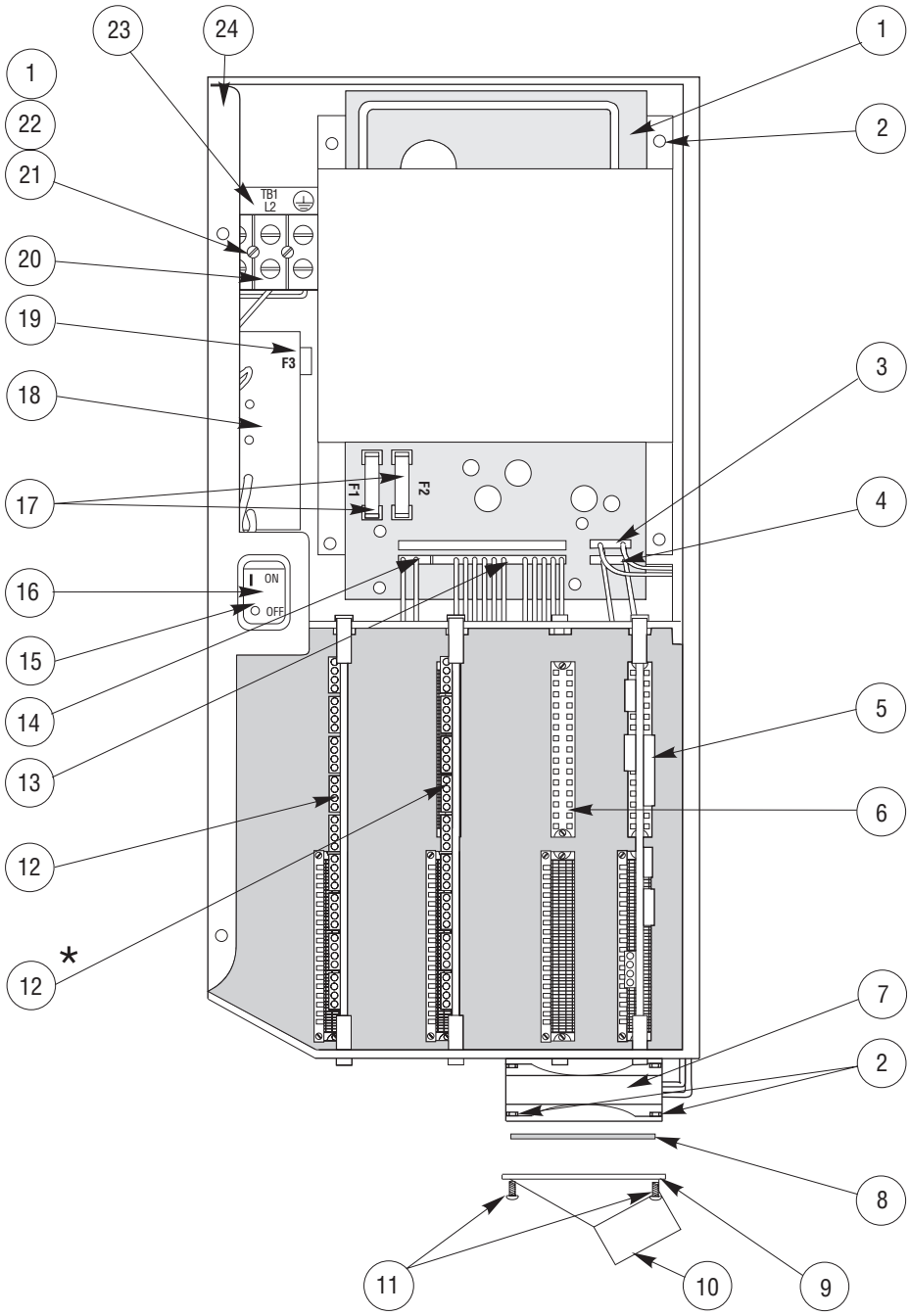
Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	764323 -327	ROD, Guard (CHS)
2	764324 -699	Glass, Sight (Set of two with 8 washers), 6" Long
3	764326 -231	SEAL, Set (Butler Bevel)
4	764320 -899	TOP VALVE (square valve body)
5	764320 -900	BOTTOM VALVE (square valve body)
6	764326 -361	WASHER, FRICTION (stainless steel)

Assembly Procedure

NOTE: Reuse the packing nut and follower from the original valve set (unless replacing the valve subassembly).

1. Remove the sight glass guard.
2. Loosen the glass packing nuts and followers on the top and bottom valves.
3. Carefully remove broken glass from the openings of the valves and clean the openings thoroughly.
4. Place packing nuts on the glass and then slide followers over the ends.
5. Slip new seals over each end of the glass and position about 1 inch in from each end, making sure the seals are oriented correctly (as indicated on the instruction sheet supplied with the seals).
6. Carefully fit one end of the glass into the bottom valve on the generator. Seat this end as far as possible; slide the other end of the glass into the top valve. Once inserted, move glass up and down as required to insure glass fits equally into the top and bottom valve.
7. Slide the seals and followers into the valve openings and secure with the packing nuts. Tighten the packing nuts hand tight plus 1/4 turn to avoid breaking the glass pipe. Tighten only enough to create a watertight seal.
8. It will be necessary to retighten the packing nuts after the generator heats up.



* Double Door Units Only

Figure 37. Control Box

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	136810 -006	POWER SUPPLY
2	84121 -002	NUT, KEPS #6
3	93918 -080	WIRE HARNESS J2/FAN
4	136809 -744	WIRE HARNESS J4/J16
*5	146656 -185	BOARD, CONTROL ASSEMBLY (See Fig. 37)
6	146657 -779	BOARD, CONNECTOR ASSEMBLY
7	93918 -079	FAN, COOLING
8	129367 -525	FILTER, AIR
9	136809 -737	GASKET, CONTROL BOX
10	136809 -743	FAN, ADAPTER
11	93908 -039	SCREW, SEMS #6 - 32 x 3/8" LG.
*12	146659 -005	I/O BOARD ASSEMBLY (Double Door requires 2 boards)
	129361 -870	■ RELAY
	129367 -542	■ RELAY
13	136809 -746	WIRE HARNESS J3B/J15B
14	136809 -745	WIRE HARNESS J3A/J15A
15	129367 -517	DECAL, SWITCH
16	93911 -576	SWITCH, CONTROL (SW1)
17	93910 -584	FILTER, LINE
18	764317 -463	FUSE, 5A (F3)
19	129361 -158	BLOCK, TERMINAL
20	3966 -041	SCREW, RD., HD. #6-32 x 1-1/4" LG.
21	19675 -041	LOCKWASHER, #6
22	129367 -492	LABEL, TERMINAL BLOCK
23	146657 -777	HOUSING, CONTROL
24	93918 -352	HOSE, CONTROL BOX (Not Shown)
25	150371 -001	DECAL, DISCONNECT POWER (Not Shown)
26	93918 -187	LABEL, WARNING BURN HAZARD (Not Shown)
27	93918 -457	LABEL, MAIN POWER (Not Shown)
28	93918 -099	LABEL, WARNING SHOCK/BURN (Not Shown)

**Note dip switch and jumper settings (See Maintenance Procedures, P-764326-797 for settings.)*

NOTE: Complete CONTROL ASSEMBLY is P-146657-782. Control Board supplied will require proper chip set to be installed.

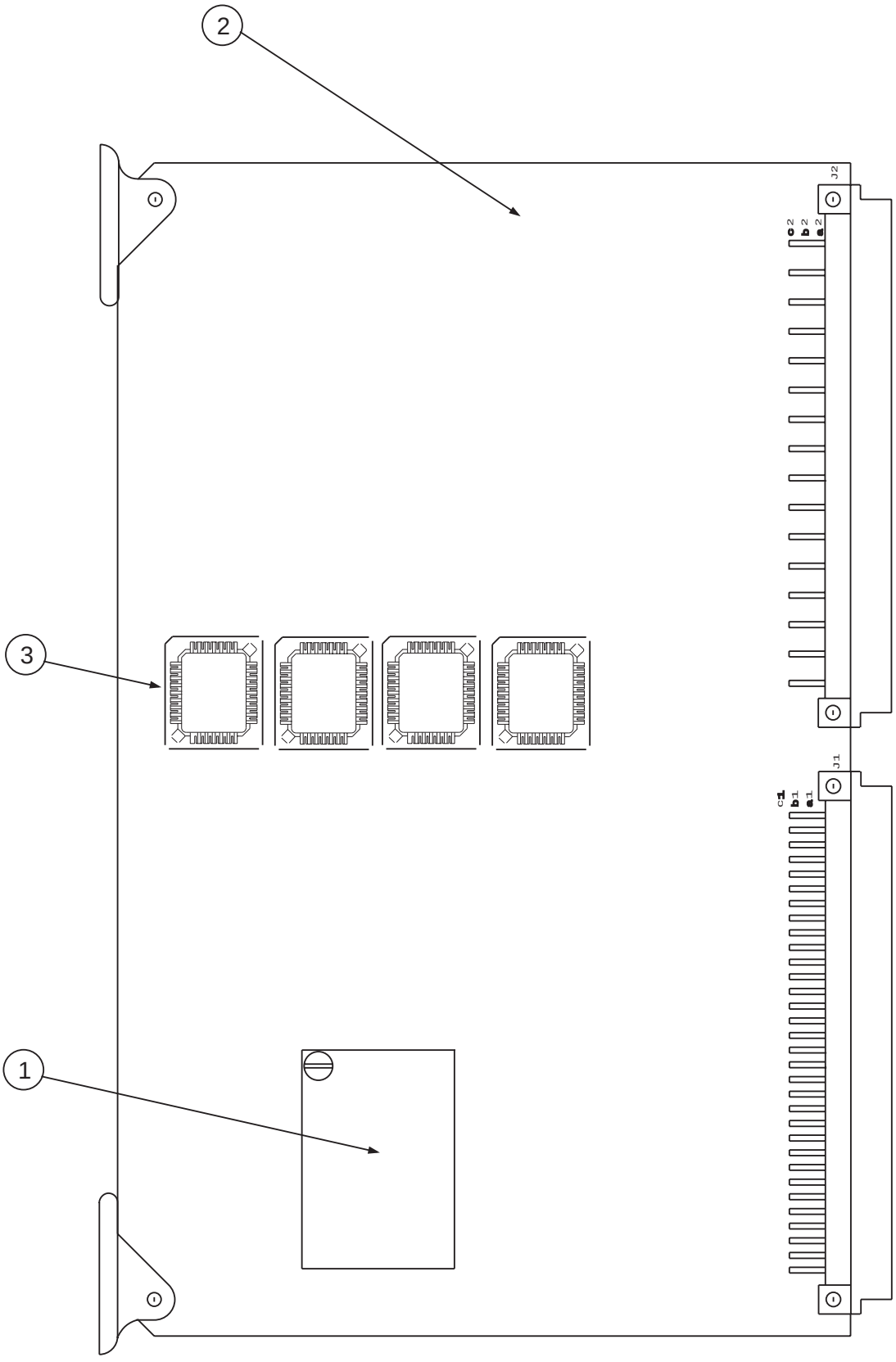


Figure 38. Control Board

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	93915 -047	BATTERY, SMART, U2 DS1260
2		CONTROL BOARD ASSEMBLY *
3		EPROM SET
	755716 -379	■ CENTURY STERILIZER, HEALTHCARE, VACAMATIC
	755716 -380	■ CENTURY STERILIZER, HEALTHCARE, GRAVITY
	755716 -381	■ CENTURY STERILIZER, HEALTHCARE, VACAMATIC W/LIQUIDS CYCLE
	755716 -382	■ CENTURY STERILIZER, HEALTHCARE, GRAVITY W/LIQUIDS CYCLE
	755716 -383	■ CENTURY STERILIZER, SCIENTIFIC, VACAMATIC
	755716 -384	■ CENTURY STERILIZER, SCIENTIFIC, GRAVITY
	755716 -385	■ CENTURY STERILIZER, SCIENTIFIC, ISOTHERMAL
	755716 -564	■ MILLENNIUM STERILIZER

* *Includes 4 unprogrammed eproms. Must be replaced with originals or new sets listed.*

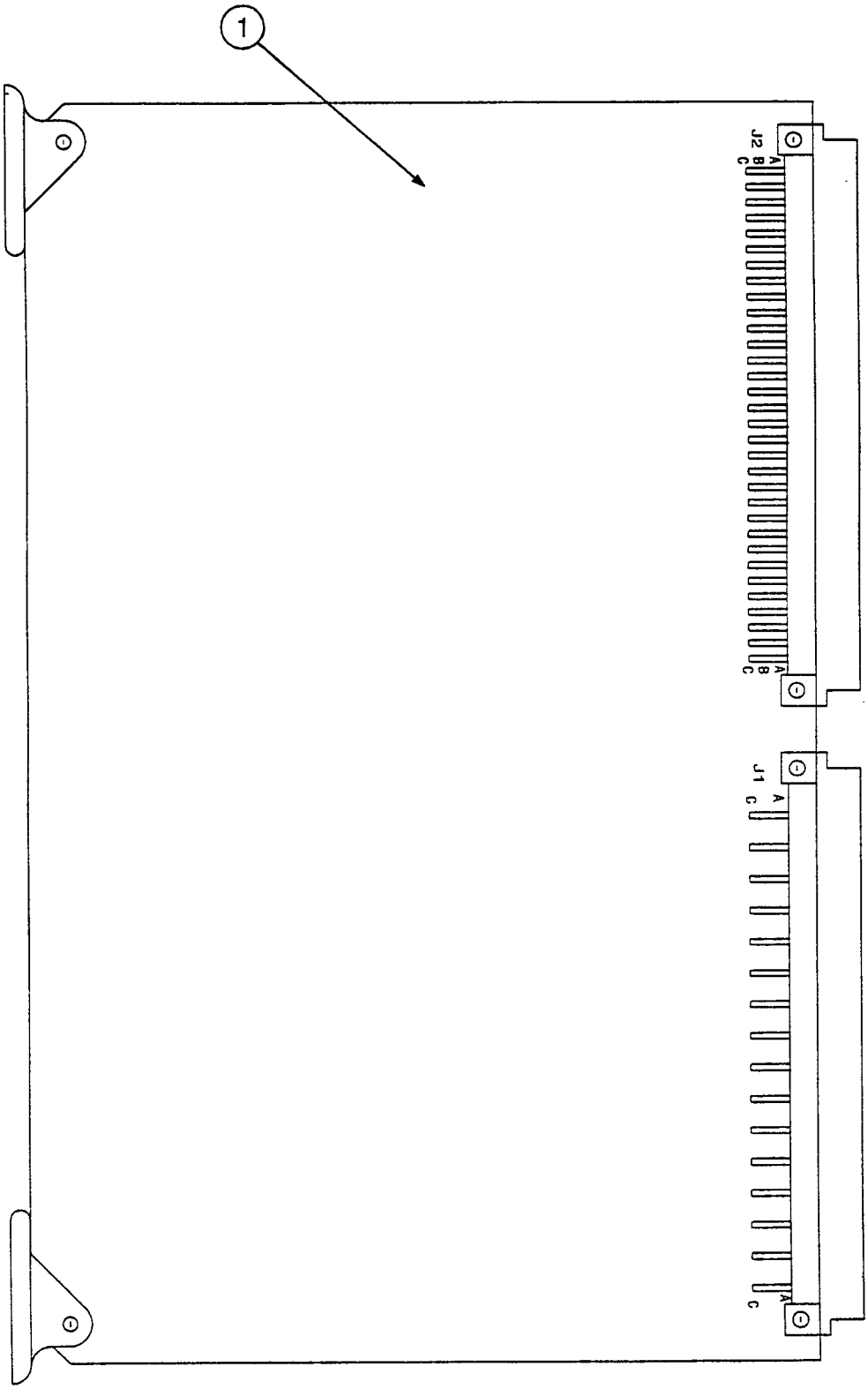


Figure 39. I/O Board

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	146659 -005	I/O BOARD ASSEMBLY
	129367 -542	■ RELAY, RV (High Current Relay - U13, U14, U15 on I/O Boards without Fuses; DRVØ , DRV1, DRV2 on I/O Boards with Fuses)
	129361 -870	■ RELAY, SOLID STATE (Low Current Relay - U5 to U12 and U16 to U21 on I/O Boards without Fuses; DRV3 to DRV15 on I/O Boards with Fuses)
	129363 -928	■ FUSE (I/O Boards with Fuses Only)

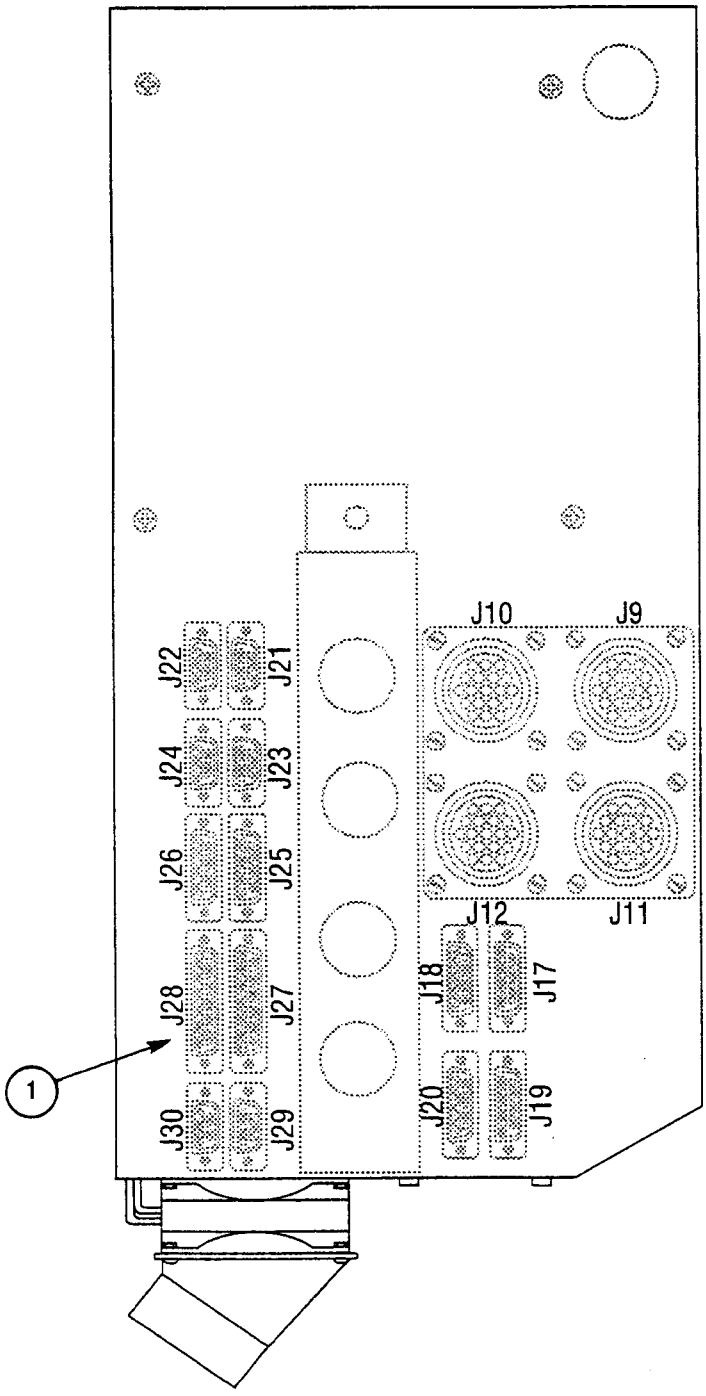


Figure 40. Control Box Plug Locations

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
J9	146657 -774	CABLE ASSEMBLY, P-9 to P-10
J9	146657 -854	CABLE ASSEMBLY, P-9 to P-10A, P-10B (DOUBLE DOOR ONLY)
J10	146657 -773	CABLE ASSEMBLY, P-10 - S3, S37 (SINGLE/DOUBLE DOOR)
J11	146657 -770	CABLE ASSEMBLY, P-11 - S2, S35 (SINGLE/DOUBLE DOOR)
J12	146657 -771	CABLE ASSEMBLY, P-12 to S4, S7
J19	136809 -753	CABLE ASSEMBLY, P-19 to CS1, PS1 (SINGLE/DOUBLE DOOR)
J18	136809 -752	CABLE ASSEMBLY, P-18 to LS1, LS3 (SINGLE/DOUBLE DOOR)
J21 J22, J24	136809 -751	CABLE ASSEMBLY RTD, PB - PA
J23	136809 -787	CABLE ASSEMBLY, P-23 to TRANSDUCER
J27	136809 -754	CABLE ASSEMBLY, P-27 to P-1
J28	136809 -754	CABLE ASSEMBLY, P1B to P28 (DOUBLE DOOR ONLY)
	136809 -755	CABLE ASSEMBLY, P100 (2 WIRES)
1	56401 -755	D CONNECTOR ASSEMBLY, FILTER (Installed on J27 and J28 Only)

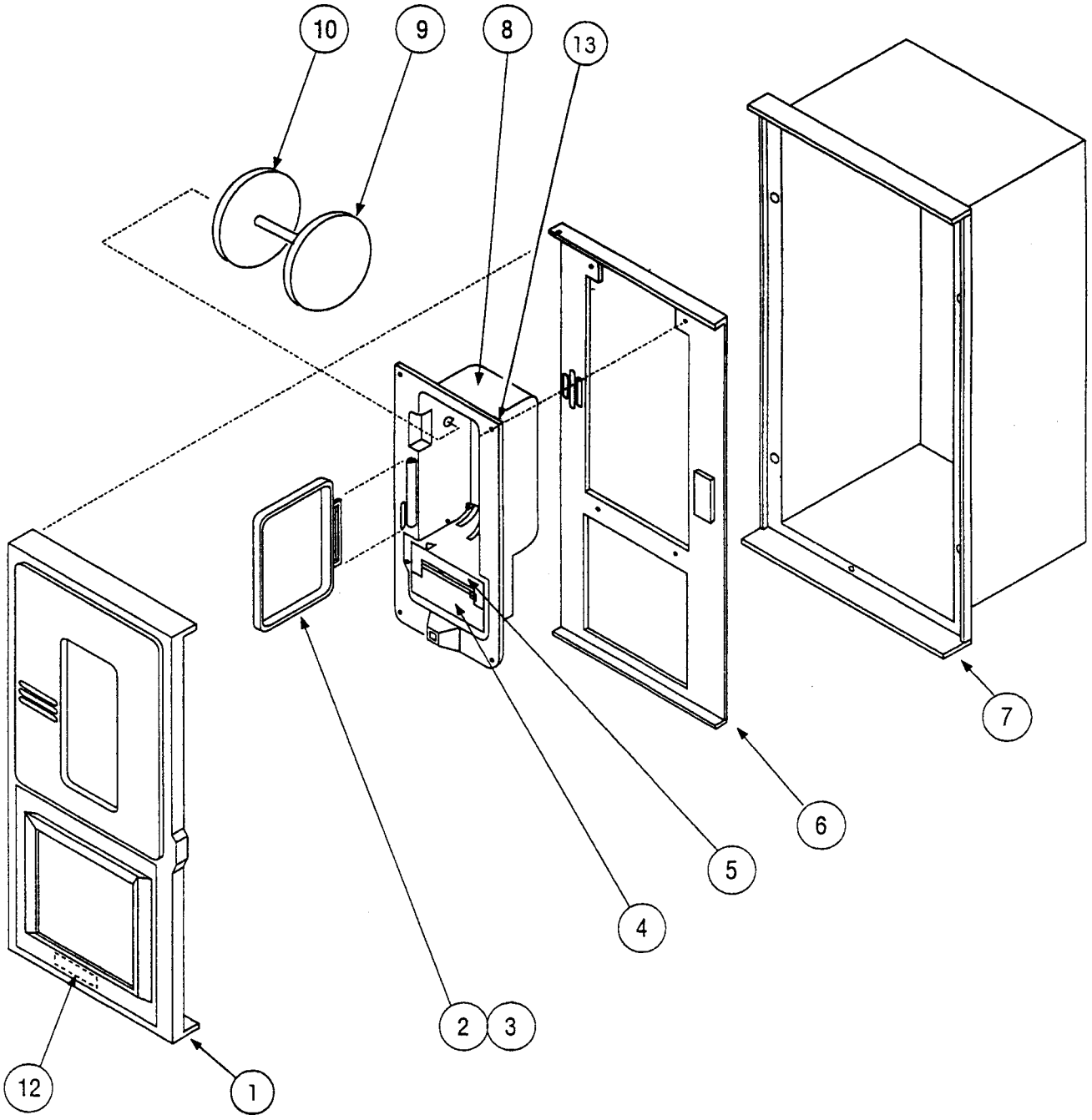


Figure 41. Printer Assembly

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	146657 -776	DOOR, PRINTER ACCESS - CENTURY
	93922 -453	DOOR, PRINTER ACCESS - MILLENNIUM
2	136809 -703	PLATEN
3	93918 -059	DECAL, LOAD PAPER (Not Shown)
4	93918 -051	PRINTER - HEADER ASSEMBLY
5	150828 -440	PRINTER RIBBON CARTRIDGE
6	146657 -778	PLATE, MOUNTING PRINTER HOUSING
7	146657 -777	HOUSING, CONTROL
8	146657 -755	HOUSING, PRINTER
9	93918 -213	SPOOL, STUD
10	93918 -058	SPOOL ASSEMBLY
11	129362 -819	PRINTER PAPER (BOX OF 3) (Not Shown)
12	150748 -001	DECAL, SHOCK HAZARD
13	129362 -190	SCREW, SHOULDER, 4-40 x 1/16

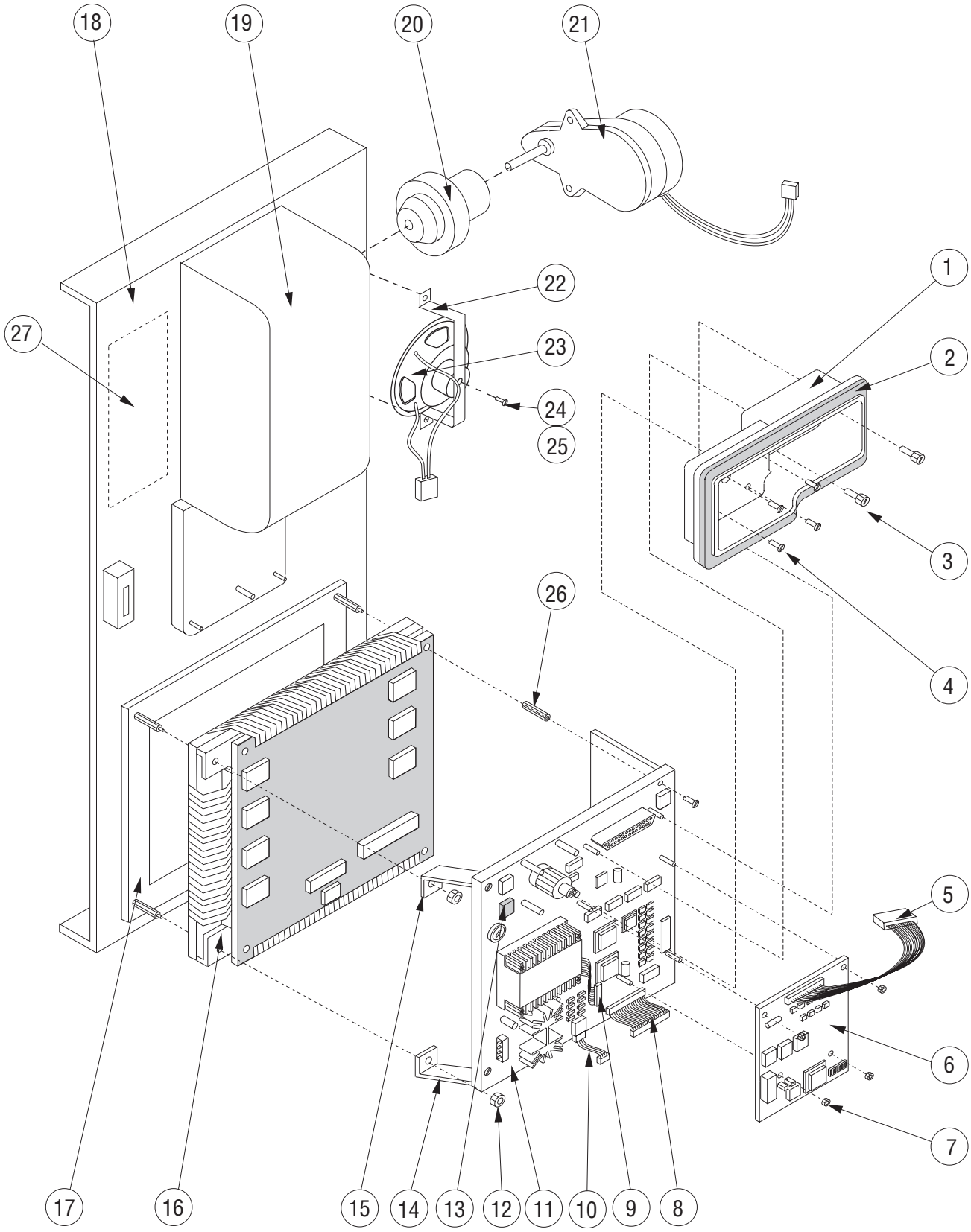


Figure 42. Control Panel Assembly

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	146657 -754	BEZEL, CONNECTOR
2	129367 -483	GASKET, BEZEL
3	129361 -899	STANDOFF M x F, #6 - 40 x 3/16" LG.
4	93908 -032	SCREW, SEMS MACH, #4 - 40 x 1/2" LG.
5	136809 -730	HARNESS, WIRE, PTR/J44
*6	146656 -182	BOARD, PRINTER ASSEMBLY
7	84121 -002	NUT, KEPS #6-32
8	93918 -021	HARNESS, I.C., 40 circuit
9	93918 -068	HARNESS, WIRE, J15/J42
10	93918 -084	HARNESS, WIRE, J4/CN2
*11	146657 -752	DISPLAY INTERFACE BOARD ASSEMBLY
12	84121 -002	NUT, KEPS, #6 - 32
13	129360 -770	RELAY, UJ17 (operates paper take-up motor)
14	93918 -185	BRACKET, PRINTER BOARD R.H.
15	93918 -184	BRACKET, PRINTER BOARD L.H.
16	136809 -735	DISPLAY MODULE, VACUUM FLUORESCENT
17	136809 -701	SCREEN, TOUCH (8x8)
18	146657 -778	PLATE, MOUNTING
19	146657 -755	HOUSING, PRINTER
20	93918 -205	MAGNET, SPINDLE ASSEMBLY
	93911 -956	■ MAGNET ONLY
	129367 -593	■ TAPE (Plastic Ring)
	93918 -058	■ SPOOL, TAKEUP
21	93918 -014	GEARMOTOR, CW
22	93911 -955	BRACKET, SPEAKER
23	93918 -022	SPEAKER, ASSEMBLY
24	93908 -040	SCREW, SEMS MACH, #8 - 32 x 1/4" LG.
25	150473 -302	WASHER, FLAT #8 x .049 THK
26	93912 -157	STANDOFF M x F, #6 - 32 x 1" LG.
27	93918 -059	PLATE, INSTR. (O.E. ONLY)

** When replacing 146657-752 and 146656-182, note that the dip switch settings are found in the Maintenance Procedures, P-764326-797.*

NOTE: Part Number for Complete Display:
146657-787 - O.E.
146657-850 - N.O.E.

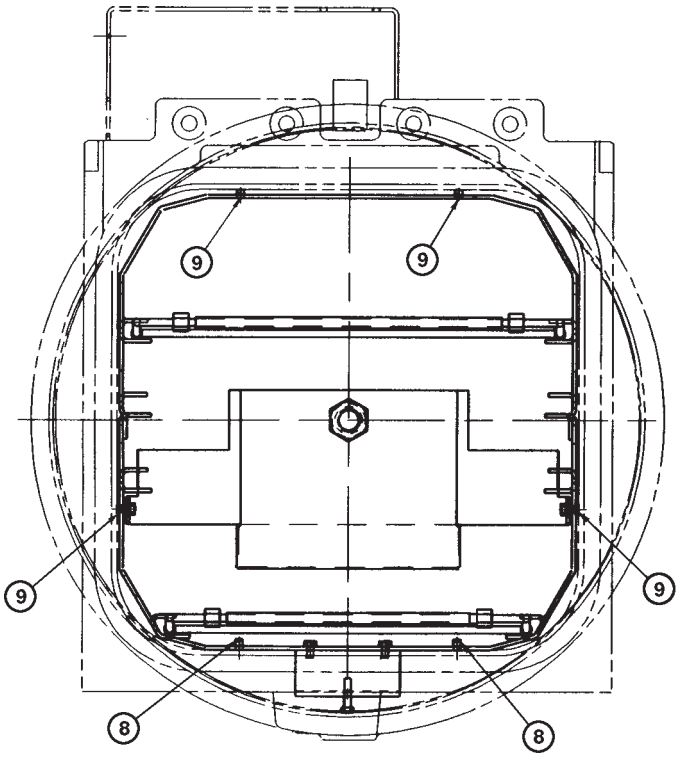


Figure 43A. Rack and Shelf Installation Assembly - 16" Single Door, Front View

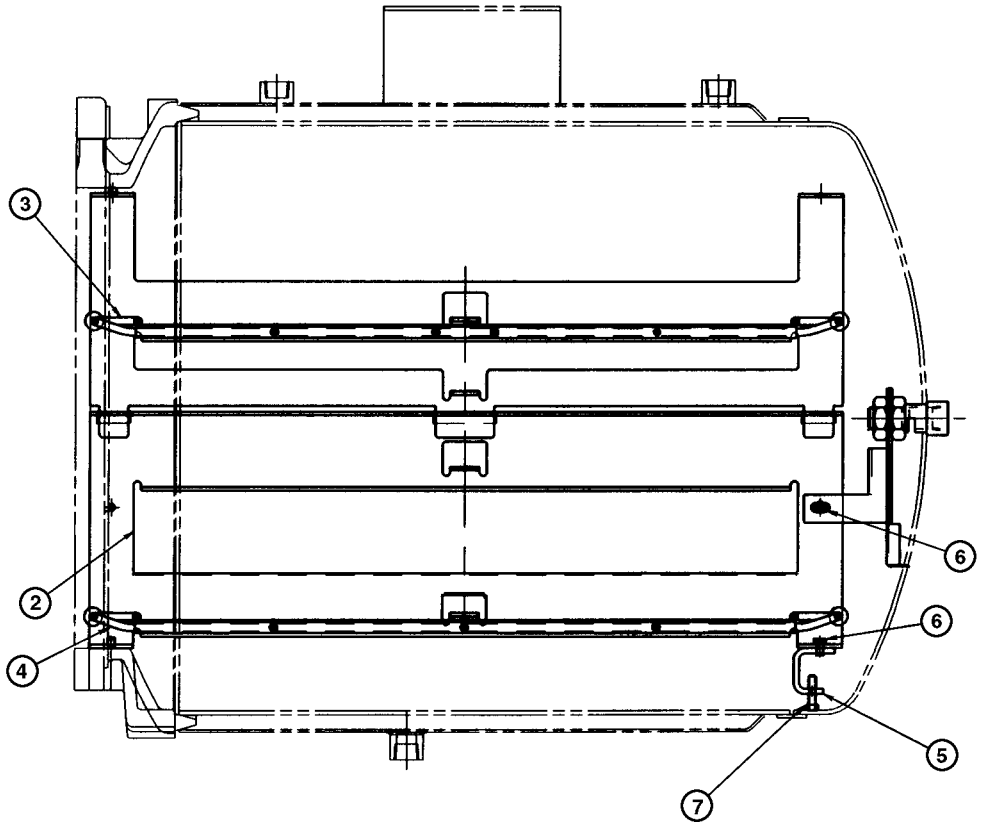


Figure 43B. Rack and Shelf Installation Assembly - 16" Single Door, Side View

CENTURY AND MILLENNIUM STERILIZERS

Rack and Shelf Installation Assembly - 16" Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848		
ITEM NO.	PART NUMBER	DESCRIPTION
1	141214 -019	RACK & SHELF
2	146660 -196	WELDMENT, SHELF SUPPORT FRAME
3	141214 -016	WELDMENT, UPPER SHELF
4	141214 -015	WELDMENT, LOWER SHELF
5	93918 -070	PLATE, RACK SUPPORT
6	150473 -154	SCREW, HEX HED, 1/4 - 20 x 3/8" LG
7	150473 -148	SCREW, HEX HED, 1/4 - 20 x 1" LG
8	129353 -314	SCREW, SET, 1/4 - 20 x 3/8" LG
9	101000 -950	SCREW, SET, 1/4-20 x 3/16" LG

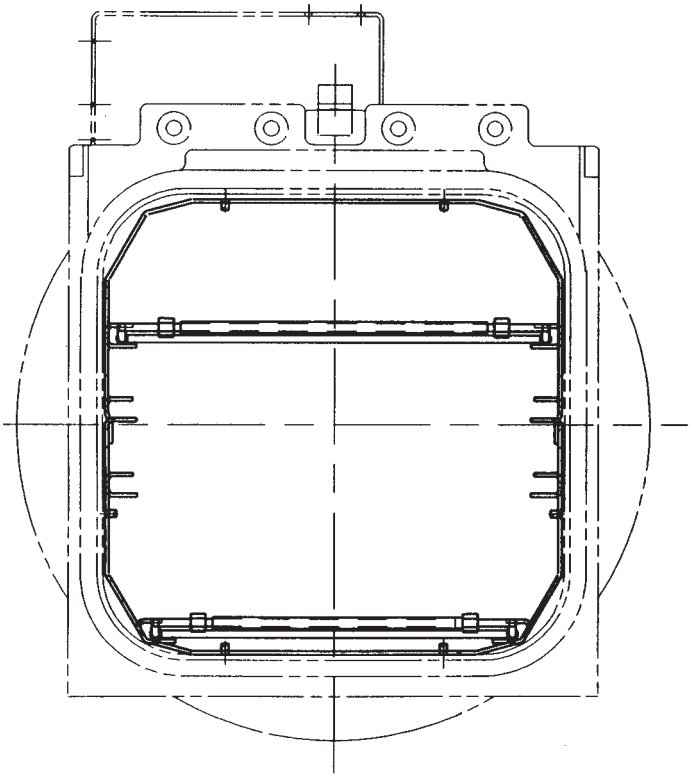


Figure 44A. Rack and Shelf Installation Assembly - 16" Double Door, Front View

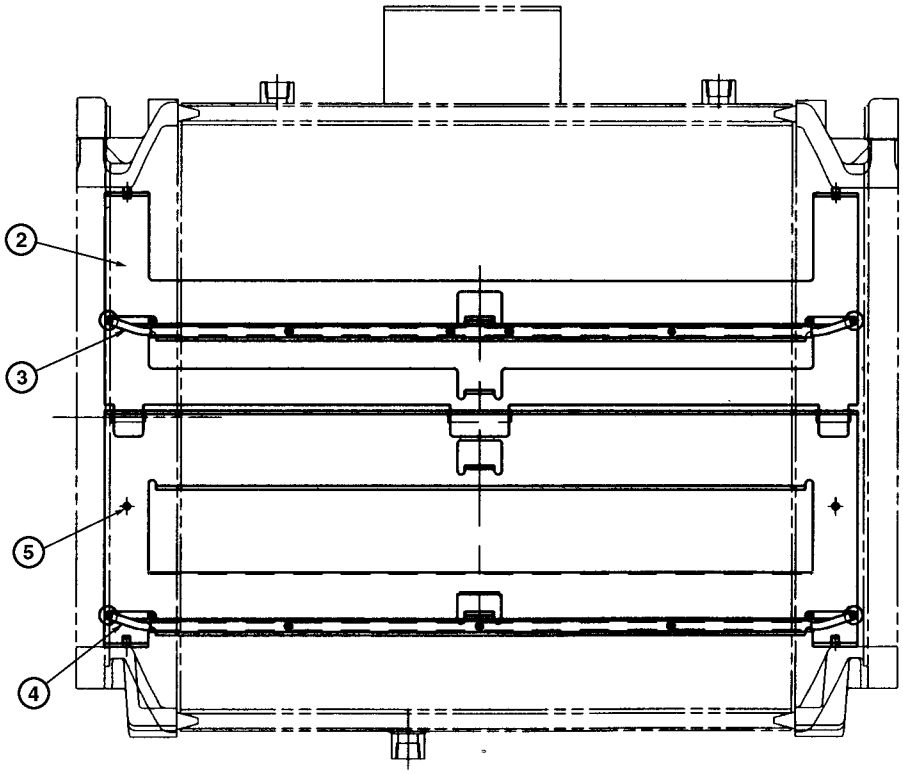


Figure 44B. Rack and Shelf Installation Assembly - 16" Double Door, Side View

CENTURY AND MILLENNIUM STERILIZERS

Rack and Shelf Installation Assembly - 16" Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848		
ITEM NO.	PART NUMBER	DESCRIPTION
1	141214 -020	RACK & SHELF
2	146660 -196	WELDMENT
3	141214 -016	WELDMENT
4	141214 -015	WELDMENT
5	129353 -314	SCREW SET, 1/4 - 20 x 3/8" LG

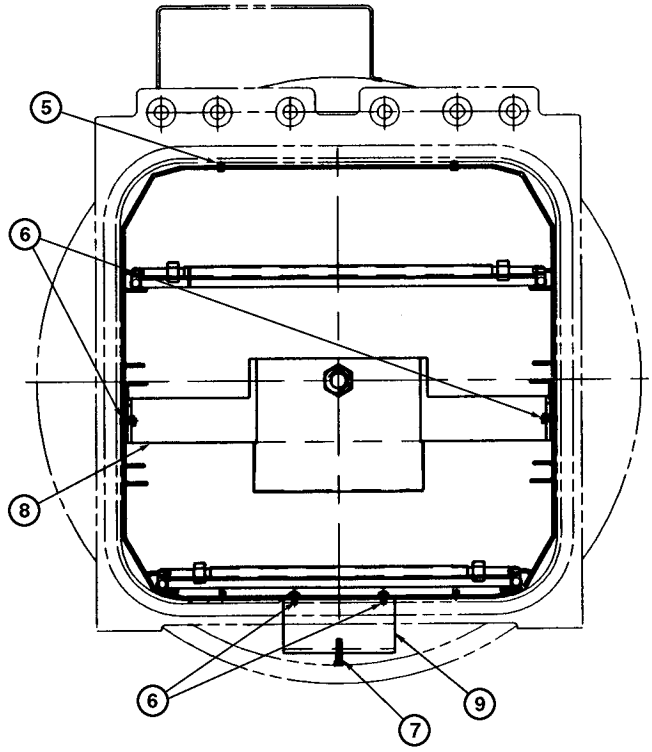


Figure 45A. Rack and Shelf Installation Assembly - 20" Single Door, Front View

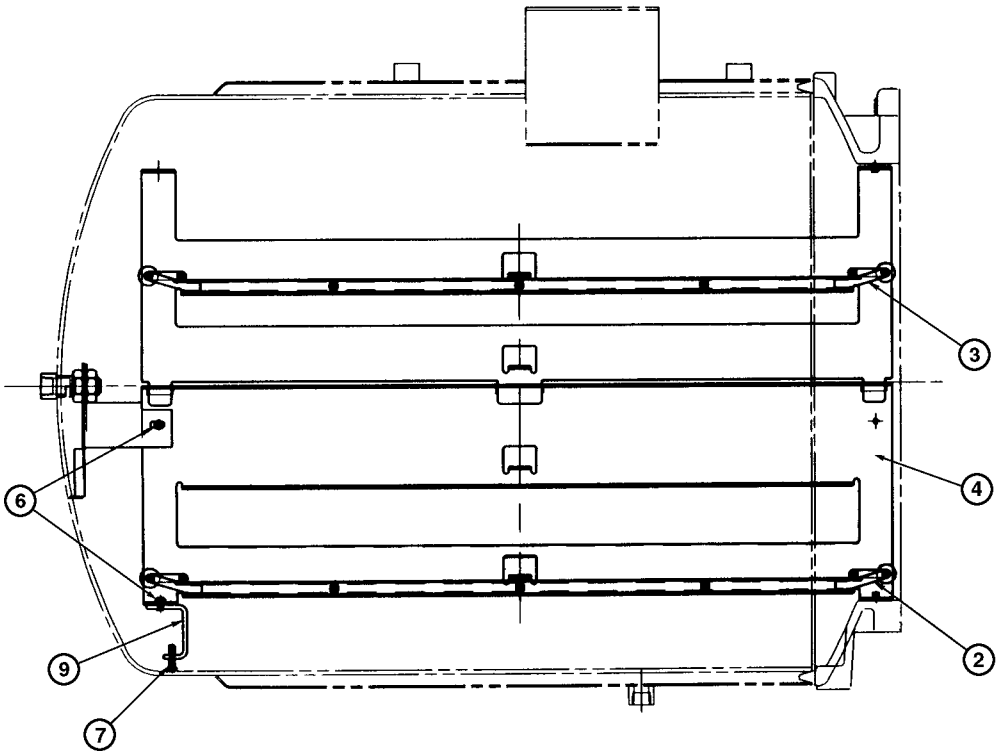


Figure 45B. Rack and Shelf Installation Assembly - 20" Single Door, Side View

CENTURY AND MILLENNIUM STERILIZERS

Rack and Shelf Installation Assembly - 20" Single Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848		
ITEM NO.	PART NUMBER	DESCRIPTION
1	141214 -021	RACK & SHELF
2	141214 -017	WELDMENT
3	141214 -018	WELDMENT
4	146660 -342	WELDMENT
5	129353 -314	SCREW SET, 1/4 - 20 x 3/8 LG
6	150473 -154	SCREW, HEX HED, 1/4 - 20 x 3/8 LG
7	150473 -148	SCREW, HEX HED, 1/4 - 20 x 1 LG
8	134473 -193	BRACKET, SHELF
9	93918 -200	PLATE, RACK SUPPORT

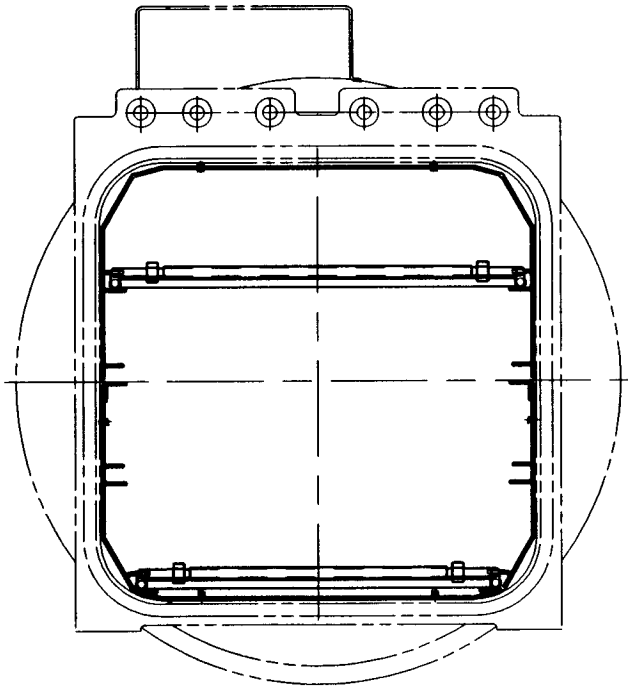


Figure 46A. Rack and Shelf Installation Assembly - 20" Double Door, Front View

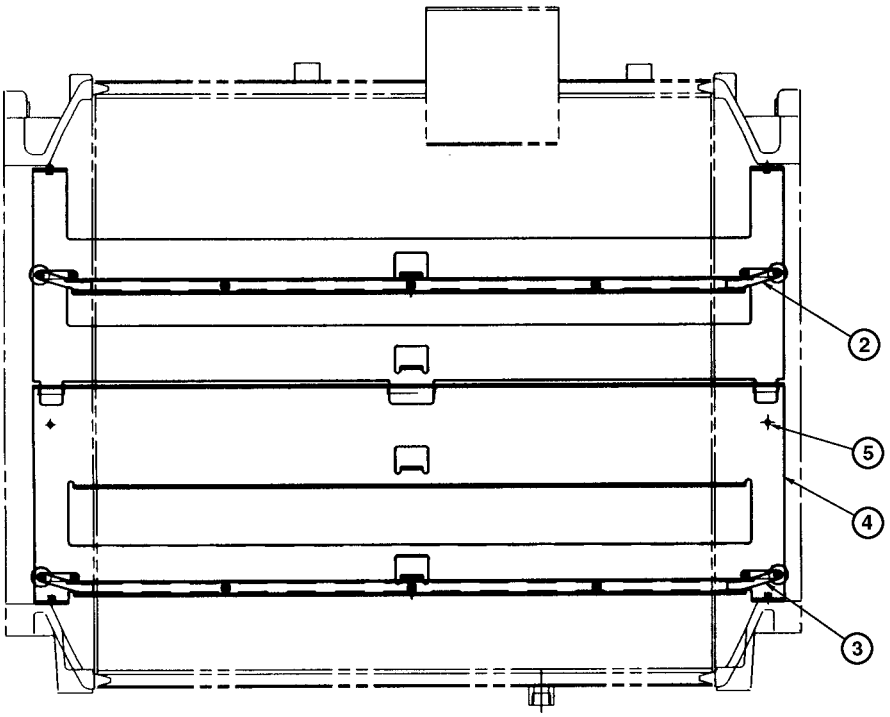


Figure 46B. Rack and Shelf Installation Assembly - 20" Double Door, Side View

CENTURY AND MILLENNIUM STERILIZERS

Rack and Shelf Installation Assembly - 20" Double Door

Call STERIS Customer Service For Ordering Parts 1-800-333-8848		
ITEM NO.	PART NUMBER	DESCRIPTION
1	141214 -022	RACK & SHELF
2	141214 -018	WELDMENT
3	141214 -017	WELDMENT
4	146660 -342	WELDMENT
5	129353 -314	SCREW SET, 1/4 - 20 x 3/8" LG

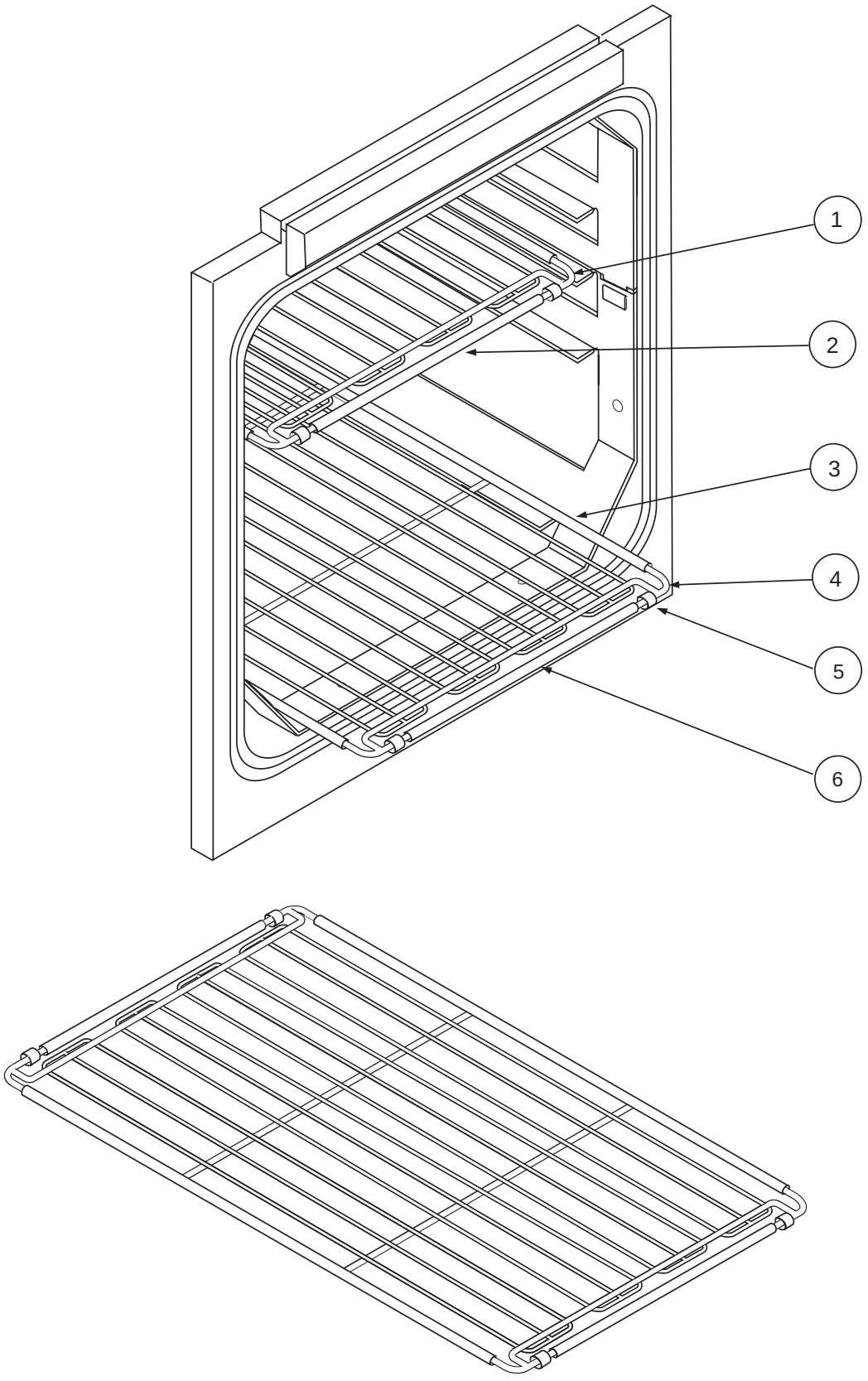


Figure 47. Rack and Shelf

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION
1	141214 -016	SHELF, UPPER, (16" unit), 14-7/16" x 25-9/16"
	141214 -018	SHELF, UPPER, (20" unit), 18-5/8" x 33-9/16"
2	93918 -046	HANDLE, TEFLON, (16" Upper Rack)
	93918 -197	HANDLE, TEFLON, (20" Upper Rack)
3	93918 -034	RUNNER, TEFLON, (16" Lower and Upper Racks)
	93918 -198	RUNNER, TEFLON, (20" Lower and Upper Racks)
4	141214 -015	SHELF, LOWER, (16" unit), 12-7/32" x 25-9/16"
	141214 -017	SHELF, LOWER, (20" unit), 16-5/16" x 33-9/16"
5	129367 -444	ROLLER, TEFLON, (16" Lower and Upper Racks)
	129367 -364	ROLLER, TEFLON, (20" Lower and Upper Racks)
6	93918 -047	HANDLE, TEFLON, (16" Lower Rack)
	93918 -196	HANDLE, TEFLON, (20" Lower Rack)

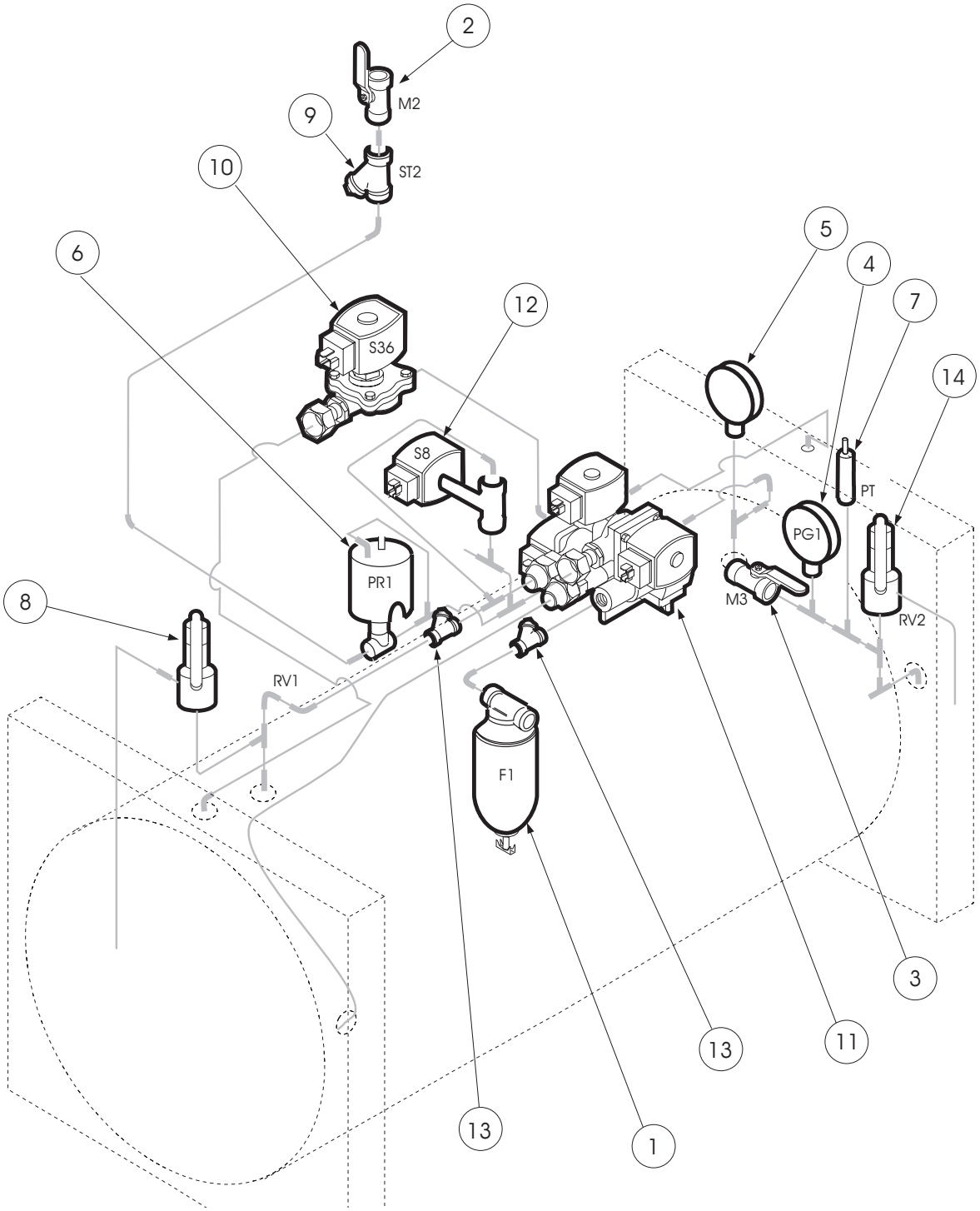
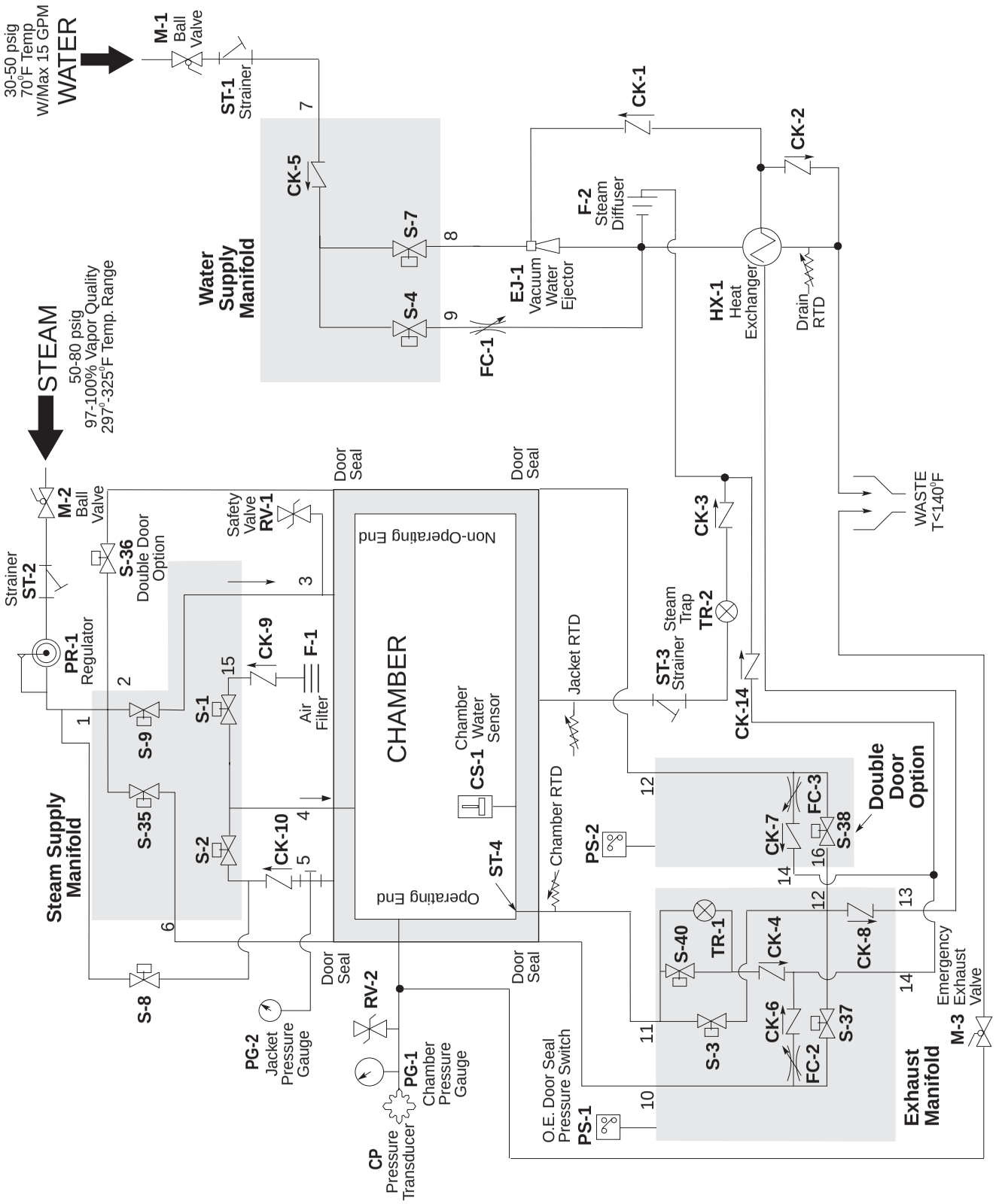


Figure 48. Isothermal Modification - Century Sterilizers

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	
1	93909 -592	FILTER, AIR, 1/2" NPT	(F1)
	129360 -802	■ ELEMENT	
2	93908 -065	BALL VALVE, 1/2" NPT (Steam)	(M2)
3	93918 -212	BALL VALVE, 1/4" NPT (Manual Exhaust)	(M3)
4	7822 -051	PRESSURE GAUGE-STEAM, CHAMBER (O.E.)	(PG1)
5	7871 -051	PRESSURE GAUGE-STEAM, JACKET	(PG2)
*6	136809 -750	REGULATOR, 3/8" NPT	(PR1)
	754359 -001	■ KIT, REPAIR	
7	136809 -787	TRANSDUCER, PRESSURE	(PT)
8	93918 -013	SAFETY VALVE, 1/2" NPT, (50 psi)	(RV1)
9	150828 -459	STRAINER, 1/2" NPT	(ST2)
	764326 -663	■ SCREEN, CONBRACO	
	764326 -727	■ O'RING, CONBRACO	
	764317 -906	■ SCREEN, SARCO	
10	93911 -986	VALVE, SOLENOID, 1/8" NPT (double door only)	(S36)
	764326 -479	■ KIT, REPAIR	
	764323 -941	■ COIL	
*11	146657 -787	MANIFOLD, STEAM SUPPLY, (See Fig. 27)	
12	93910 -479	Valve, Solenoid, 1/4 NPT	(S8)
	136809 -801	■ Cable Assembly, S8	
13	150822 -354	Valve, Check, 1/2 NPT	(CK 9, 10)
14	93918 -013	Valve, Safety	(RV2)

**NOTE: Preventive Maintenance (PM) Pack is available for this unit. PM Pack can be used to order a full set of repair kits using one part number. Refer to Page 1-3.*



Piping Schematic, Isothermal Modification - Century Sterilizers

Piping Schematic, Century Sterilizer

Isothermal Modification

CK1,2,3, 9, 10	150822-354	Check Valve 1/2" NPT (swing)
	764319-608	Disc only
CK14	10278-091	Check Valve, 1/4" (swing)
CS1	93918-038	Chamber Water Sensor
EJ1	83924-001	Ejector, Water
F1	93909-592	Filter, Air 1/2" NPT
	129360-802	Element
F2	129367-567	Diffuser, Steam
FC1	83629-001	Flow Control
HX1	136809-844	Heat Exchanger
M1	93918-066	Valve, Manual 3/4" NPT, Water
M2	93918-065	Valve, Manual, 1/2" NPT, Steam
M3	93918-212	Valve, Manual, 1/4" NPT, Dump
PG1	7872-051	Gauge, Chamber (O.E. & N.O.E.)
PG2	7871-051	Gauge, Jacket
PR1	136809-750	Valve, Pressure Regulator, 3/8" NPT
	754359-001	Kit, Repair
PS1,2	83865-001	Pressure Switch, O.E., N.O.E.
		Door Seal
PT	136809-787	Pressure Transducer
RV1, RV2	93918-013	Valve, Relief, 1/2" NPT, 50 psig
S36	93911-986	Valve, Sol. 1/8" (N.O.E. Door Seal)
	764326-479	Kit, Repair
	764323-941	Coil
S8	93910-479	Valve, Sol., 1/4"
	764076-001	Kit, Repair
ST1	47708-091	Strainer, Water, 3/4" NPT
	754616-091	Screen, SARCO
	764326-673	Screen, United Brass
ST2, ST3	150828-459	Strainer, Steam, 1/2" NPT
	764326-663	Screen, Conbraco
	764326-727	O'Ring, Conbraco
	764317-906	Screen, SARCO
ST4	93918-035	Strainer, Chamber Drain
TP	93911-351	Temperature Probe
TR2	129222-001	Steam Trap, Jacket, 1/2" NPT
	764080-001	Kit, Repair
W	146660-109	Funnel, Waste

	146657-787	**Manifold, Steam Supply Assembly**
	764326-475	Manifold Repair Kit (Less seats)
	764326-476	Seat Package (Complete)
S1	N/A	Valve, Solenoid (Air Break)
	764326-477	Kit, Repair
	764326-632	Coil
	764326-699	Seat
S2, S9	N/A	Valve, Solenoid (Steam to Chamber/ Steam to Jacket)
	764326-478	Kit, Repair
	764323-941	Coil
	764326-698	Seat
S35	N/A	Valve, Solenoid (O.E. Door Seal)
	764326-479	Kit, Repair
	764323-941	Coil
	764326-700	Seat

	146657-788	**Manifold, Exhaust Assembly**
	764326-480	Manifold Repair Kit (Less seats)
	764326-481	Seat Package (Complete)
S3	N/A	Valve, Solenoid (Fast Exhaust)
	764326-482	Kit, Repair
	764323-941	Coil
	764326-696	Seat
S37	N/A	Valve, Solenoid (O.E. Door Exhaust)
	764326-479	Kit, Repair
	764323-941	Coil
	764326-700	Seat
S40	N/A	Valve, Solenoid
	764326-483	Kit, Repair
	764323-941	Coil
	764326-701	Seat
TR1	764326-641	Steam Trap, Chamber (Cap only)
	764080-001	Kit, Repair
CK4,6, FC2		Check Valve/Flow Control Valve
	764326-485	Kit, Repair
	764326-702	Seat (CK4, CK6)
CK8		Check Valve
	764326-484	Kit, Repair
	764326-697	Seat

	146657-789	**Manifold, Water Supply Assembly**
	764326-619	Manifold Repair Kit (Less seats)
	764326-620	Seat Package (Complete)
S4, S7	N/A	Valve, Solenoid (Cooling Water/ Vacuum Water)
	764326-621	Kit, Repair
	764323-940	Coil
	764326-696	Seat
CK5	N/A	Check Valve
	764326-622	Kit, Repair
	764326-697	Seat

	136809-791	**Manifold, Double Door Option**
	764326-486	Manifold Repair Kit (Less seats)
	764326-487	Seat Package (Complete)
S38	N/A	Valve, Solenoid (N.O.E. Door Exhaust)
	764326-479	Kit, Repair
	764326-941	Coil
	764326-700	Seat
FC3, CK7	N/A	Flow Control Valve/Check Valve
	764326-485	Kit, Repair
	764326-702	Seat (CK7)

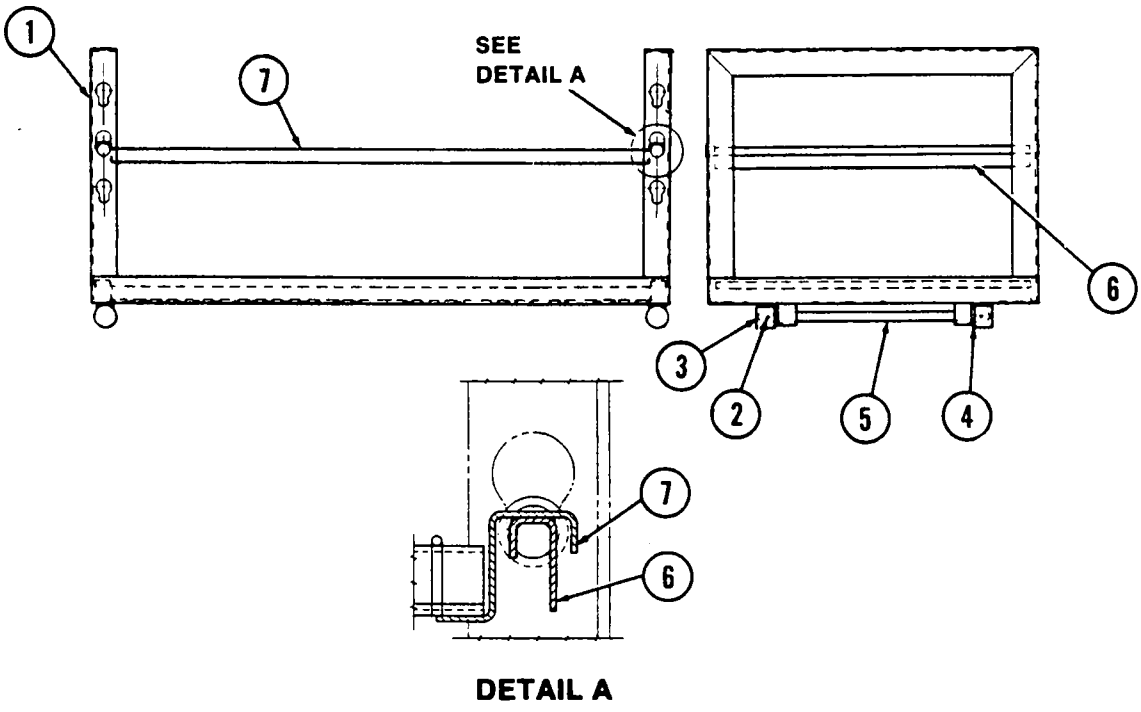


Figure 49. Optional Loading Car Assesmbly

CENTURY AND MILLENNIUM STERILIZERS

Call STERIS Customer Service For Ordering Parts 1-800-333-8848			
ITEM NO.	**PART NUMBER**	**DESCRIPTION**	**UNITS PER ASSEMBLY**
		OPTIONAL LOADING CAR ASSEMBLY	
1		FRAME	1
2	24956 -061	PIN, Roll	4
3	150828 -135	WHEEL	4
4	30417 -091	BUSHING	4
5	150828 -134	AXLE	2
6	56396 -912	SUPPORT, Shelf Weldment	2
7	141198 -375	SHELF ASSEMBLY	2
	136809 -803	TRACK, Chamber, Single Door (Not Shown)	1
	136809 -804	TRACK, Chamber, Double Door (Not Shown)	1

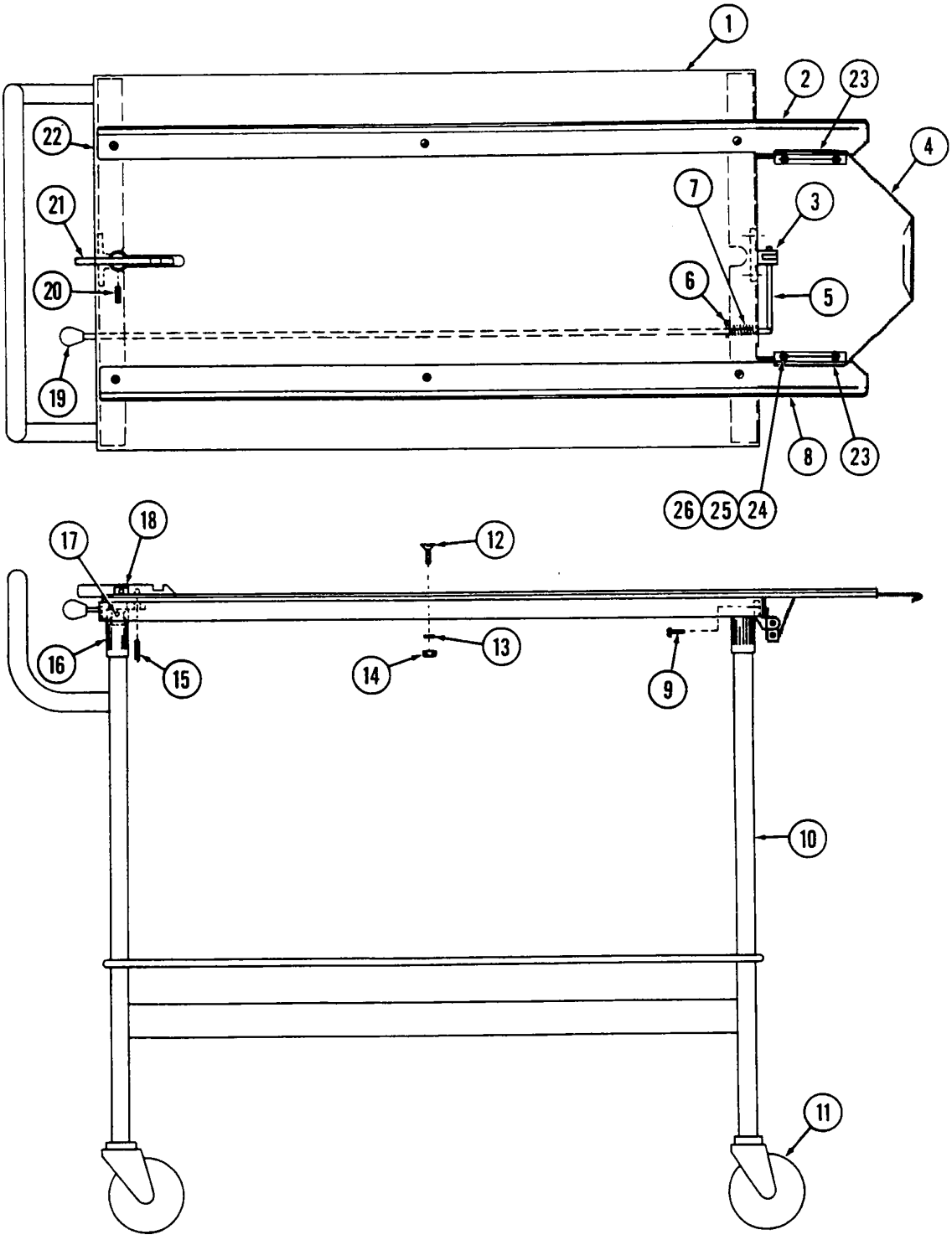


Figure 50. Optional Transfer Carriage Assembly

Optional Transfer Carriage Assembly

Call STERIS Customer Service For Ordering Parts 1-800-333-8848

ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY
		OPTIONAL TRANSFER CARRIAGE ASSEMBLY	
1	30459 -063	TOP	1
2	136809 -699	TRACK, R.H.	1
3	30440 -051	BLOCK, Catch	1
4	93918 -451	LATCH, Loading	1
5	30449 -061	ROD, Catch	1
6	23597 -061	PIN, Cotter	1
7	30458 -061	SPRING	1
8	136809 -700	TRACK, L.H.	1
9	3999 -041	SCREW, 1/4-20 x 5/8" Lg.	4
10	139692 -063	STAND ASSEMBLY	1
11	20542 -091	CASTER	4
12	12549 -062	SCREW, 1/4-20 x 5/8" Lg.	6
13	19686 -061	LOCKWASHER	6
14	8648 -061	NUT, Hex	6
15	30457 -061	SPRING, Lock Lever	1
16	30446 -052	COLLAR, Adjusting	4
17	4772 -045	SCREW, Set, 1/4-20 x 1/4" Lg.	1
18	30448 -051	BLOCK, Lock Lever	1
19	14918 -091	KNOB	1
20	24268 -061	PIN, Roll	2
21	30415 -063	LEVER, Lock	1
22	30441 -061	ANGLE ASSEMBLY	2
23	93918 -449	LATCH, Guide	2
24	41923 -041	SCREW C'SINK, #6-32 x 3/8" Lg.	4
25	8644 -061	NUT, Hex, #6-32	4
26	19684 -061	LOCKWASHER, #6	4